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# BRITISH MARINE POLYZOA.

VOL. II.



## HISTORY

OF THE

# BRITISH MARINE POLYZOA.

BY

### THOMAS HINCKS, B.A., F.R.S.,

AUTHOR OF 'A HISTORY OF THE BRITISH HYDROID ZOOPHYTES,' ETC.

"... naturâ ipsâ docente, et jucunditate suâ alliciente."

Otho Fabricius.

31879

IN TWO VOLUMES. .

VOL. II.—PLATES.

LONDON:

JOHN VAN VOORST, PATERNOSTER ROW.

MDCCCLXXX.

"The spirit of God works everywhere alike, where there is no eye to see, covering all lonely places with an equal glory, using the same pencil and outpouring the same splendour in the caves of the waters where the seasnakes swim and in the desert where the satyrs dance, amidst the fir-trees of the stork and the rocks of the conies, as among those higher creatures whom he has made capable witnesses of his working."

RUSKIN.

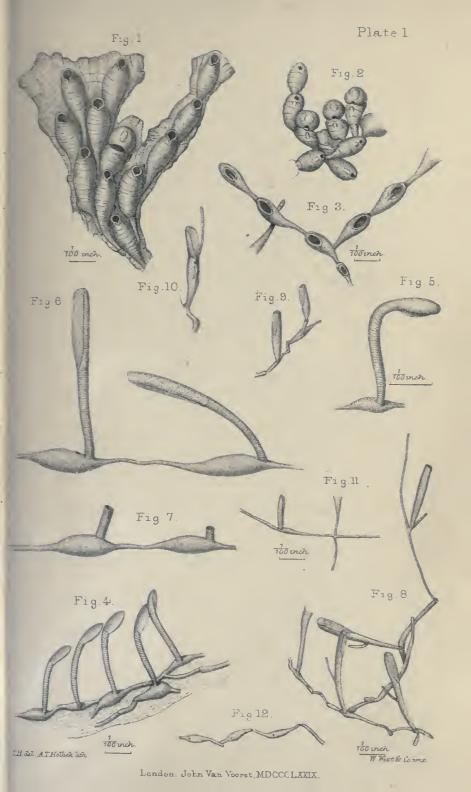


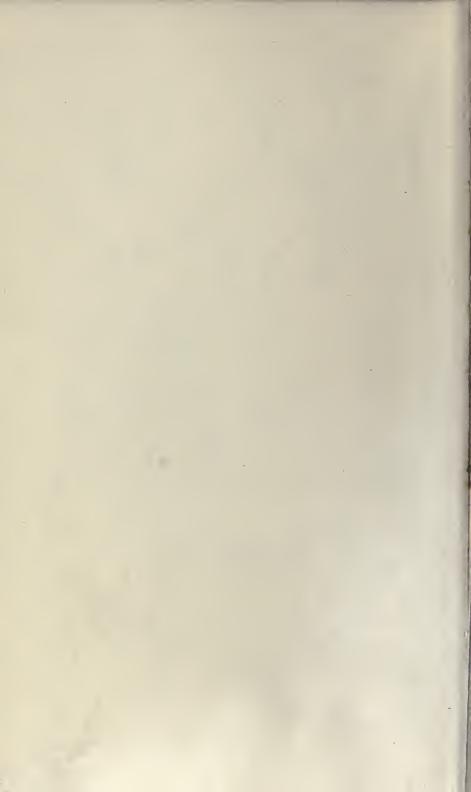
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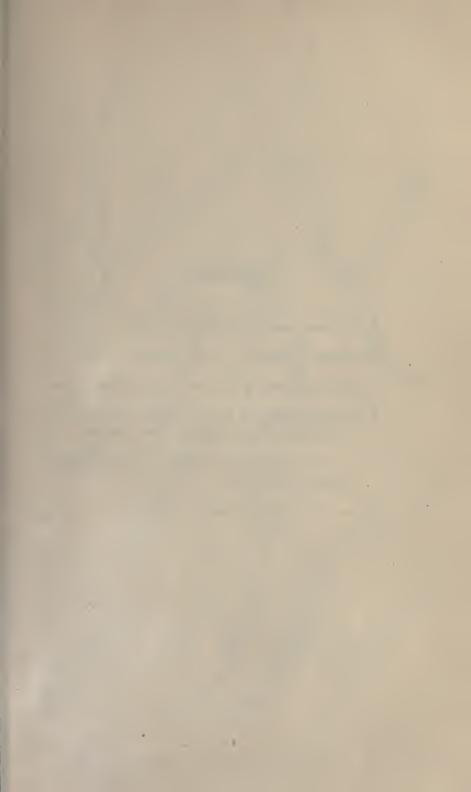


#### PLATE I.

- 1. Нірротнол Ехранза, раде 291.
- 2. Η ΓΡΡΟΤΗΟΑ DIVARICATA, var. α (CONFERTA), p. 288. See Plate XLIV.
  - 3. Eucratea Chelata, p. 14; repent form. See Plates II. &. III.
- 4, 5. AETEA ANGUINA, p. 4.
- 6, 7. AETEA RECTA, p. 6.
- 8-10. AETEA TRUNCATA, p. 8. See Plate II.
  - 11. , dwarf variety.
  - 12. , a portion of the ereeping base.

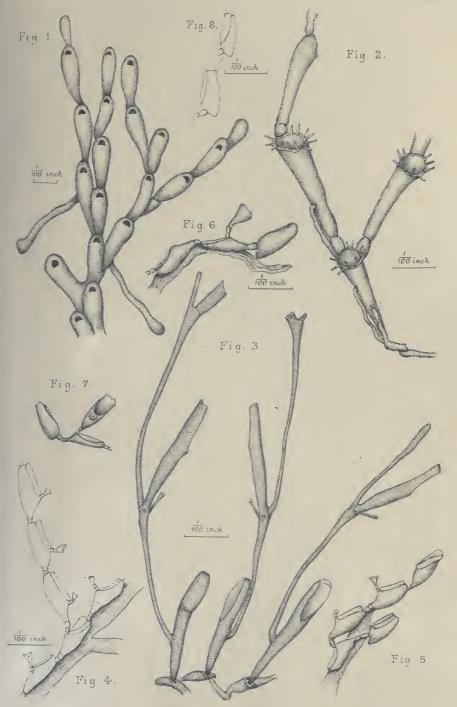






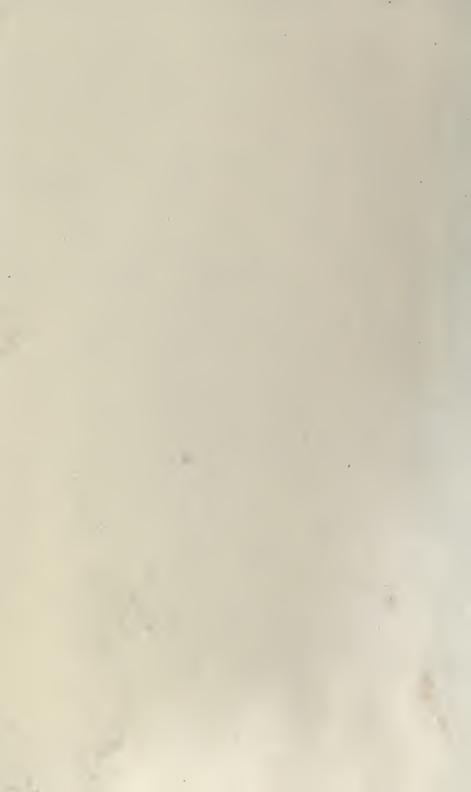
#### PLATE II.

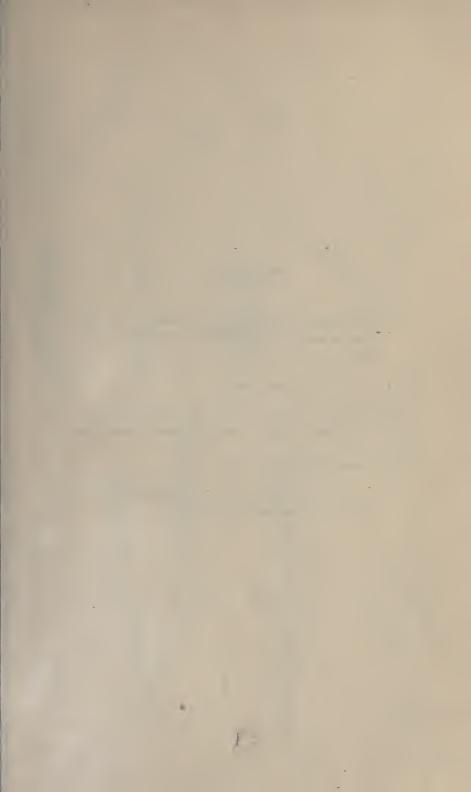
- 1. Huxleya fragilis, p. 27. After Busk.
- 2. Brettia tubæformis, p. 28. See Plate V.
- 3. Aetea truncata, p. 8; erect and pedicellate form.
- 4. Eucratea chelata, p. 14; showing the creeping line of cells, from which the shoots spring.
- 5-7. ——, showing the primary cell and the first stages of the colony.
  - 8. - , primary zoccia.



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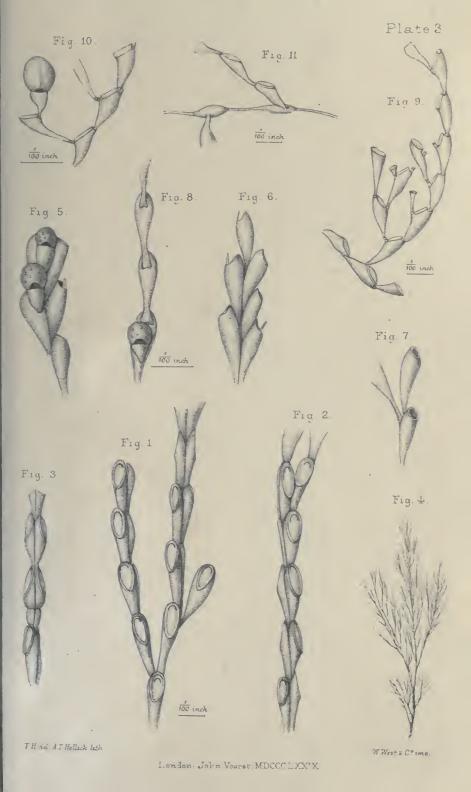
W. West & Co imp

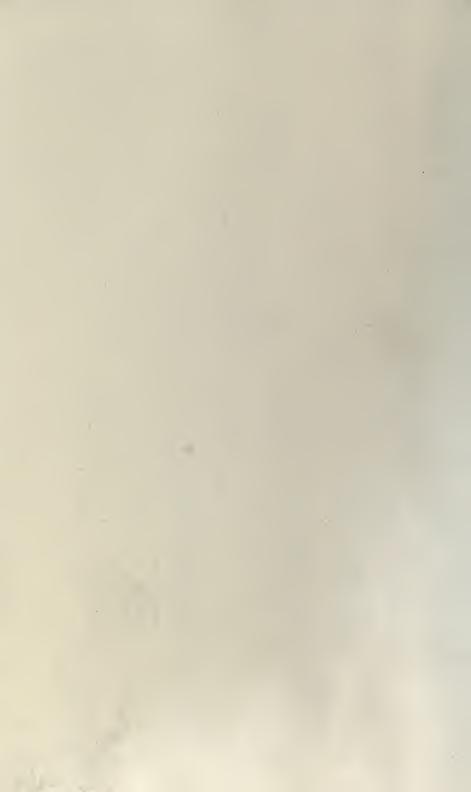


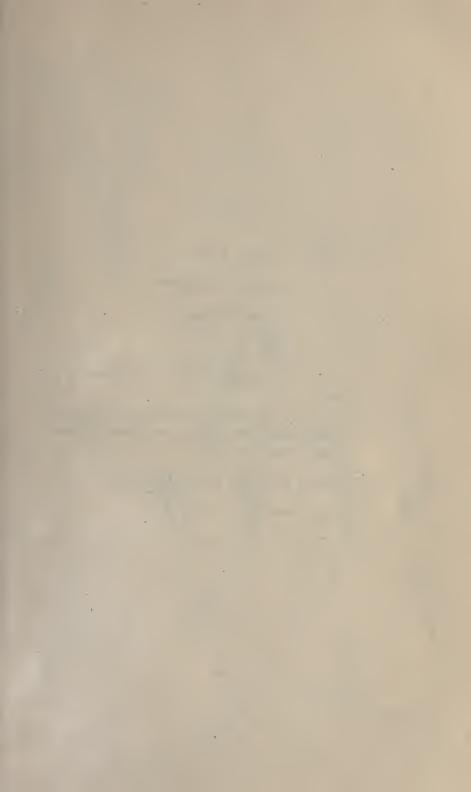


#### PLATE III.

- 1-3. Gemellaria loricata, p. 18: figure 3 is taken from a specimen of *G. Willisii* received from Dr. Dawson.
  - 4. , natural size.
- 5-8. Scruparia clavata, p. 24; the uniserial and biserial forms. Fig. 7 shows the mode of branching.
- 9, 10. Е СПЕТАТА, р. 14.
  - 11. ——, creeping base, with oval expansions, from which the shoots originate.

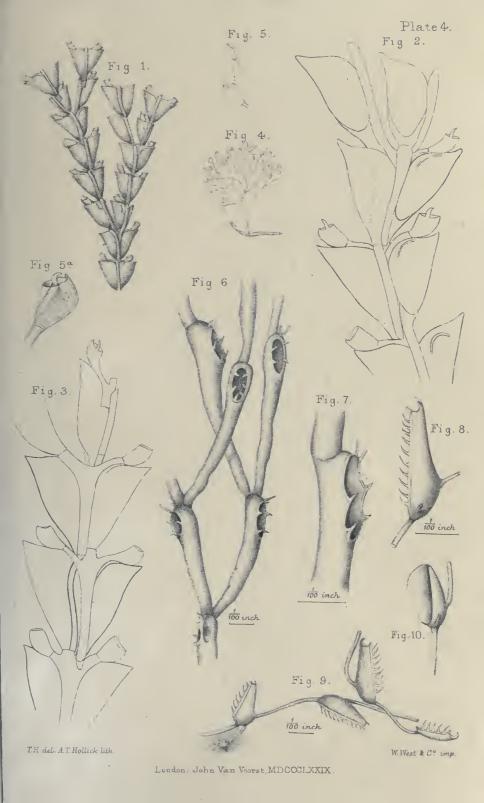


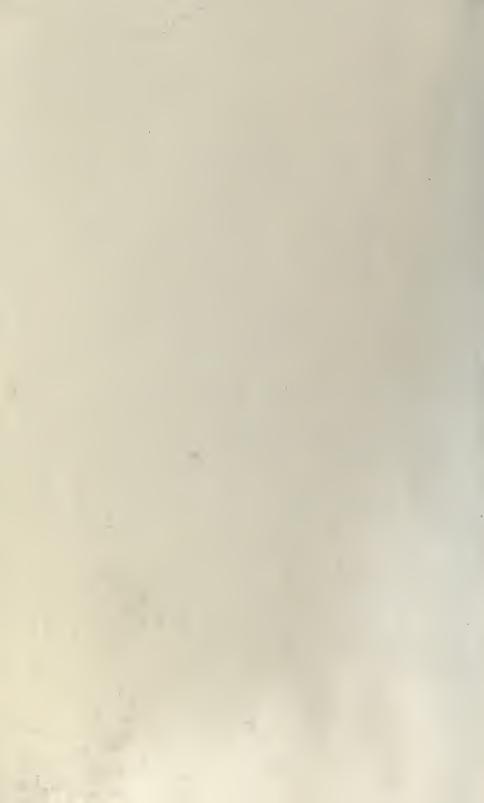


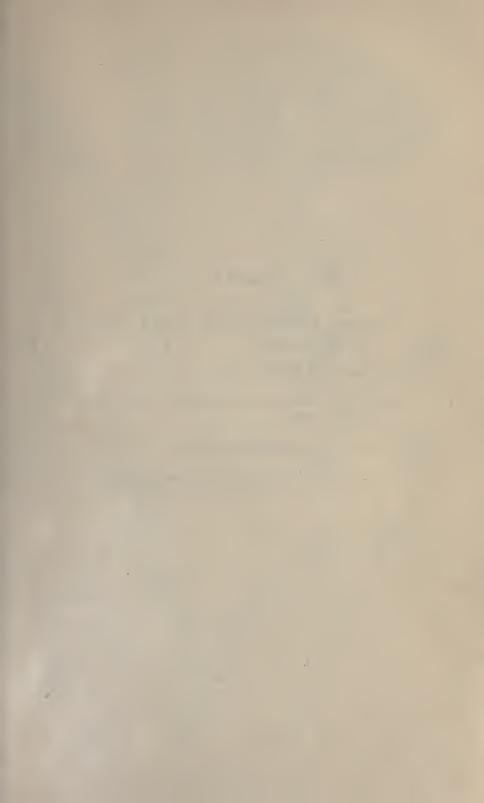


## PLATE IV.

FIG. 1.	Notamia bursaria, p. 100.
2.	, front of the zoarium.
3.	, dorsal surface.
4.	, nat. size.
5.	, avicularia, showing the differences of
5 a.	size.  .——, avieularium, showing the arrangement of the museles for opening and closing the mandible. After Busk.
3, 7.	Brettia pellucida, p. 28. After Busk.
8, 9.	Beania mirabilis, p. 96.
10.	, a young cell.

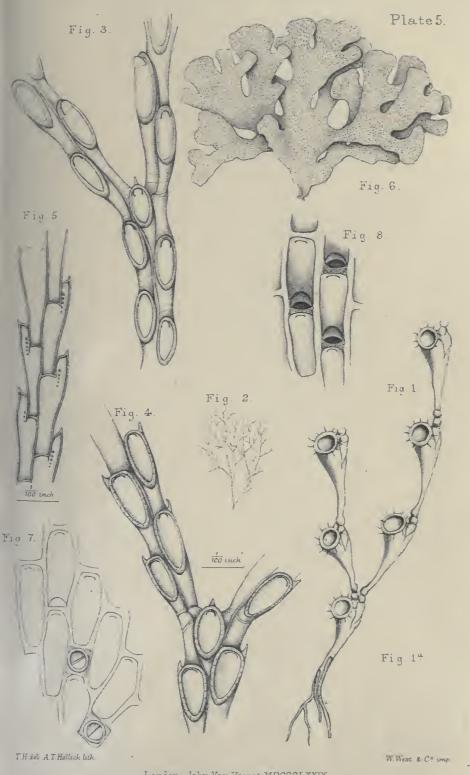






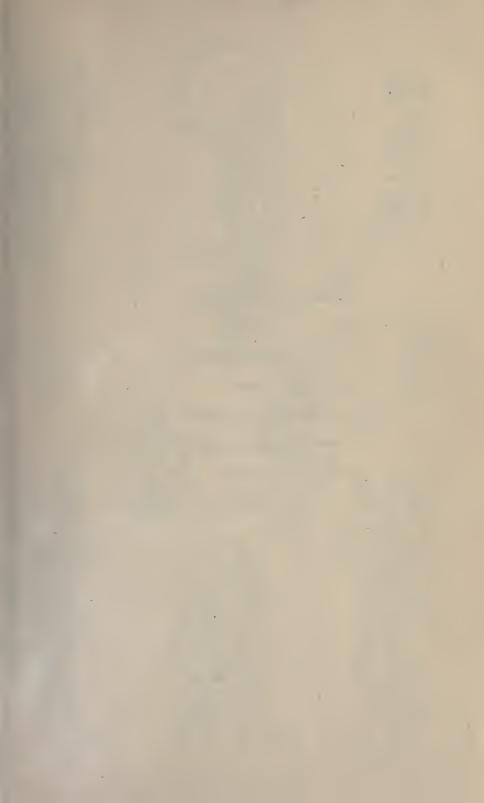
#### PLATE V.

- 1. Brettia tubæformis, p. 28. After a sketch by Mr. R. S. Boswell.
- 2-5. CELLULARIA PEACHII, p. 34.
  - 6. Flustra Barleei, p. 122, nat. size. From a drawing by Mr. Alder.
  - 7. , zoœcia, with avicularia.
  - 8. , zoccia, showing the immersed occia.



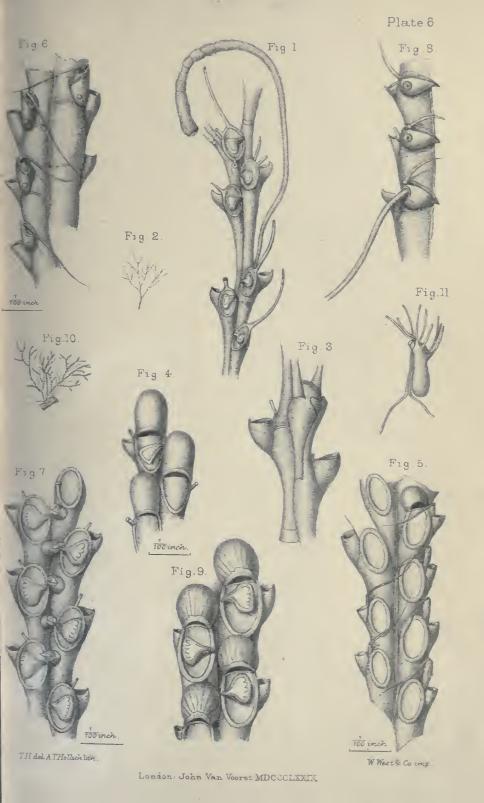
London John Van Voorst, MDCCCLXXIX





## PLATE VI.

FIG.	
1.	Menipea ternata, p. 38.
2.	, nat. size.
3.	, dorsal surface.
4.	, oœcia.
5, 6.	SCRUPOCELLARIA ELLIPTICA, p. 46.
7-9.	SCRUPOCELLARIA SCABRA, p. 48.
10.	, nat. size.
11.	, primary cell. After Smitt

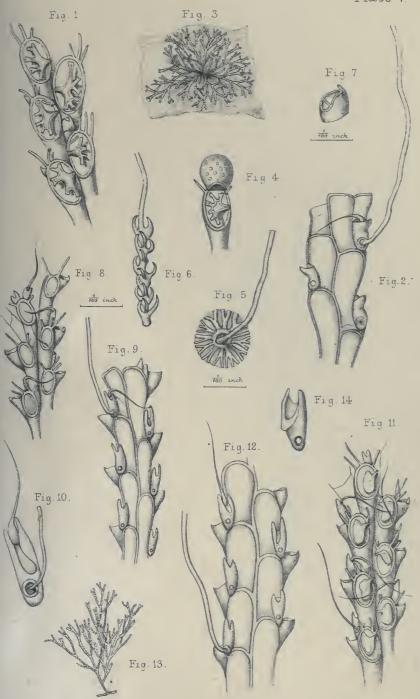






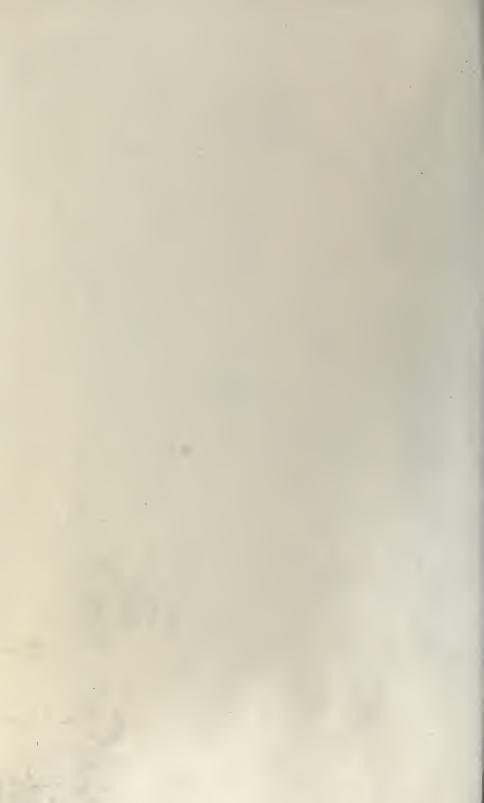
### PLATE VII.

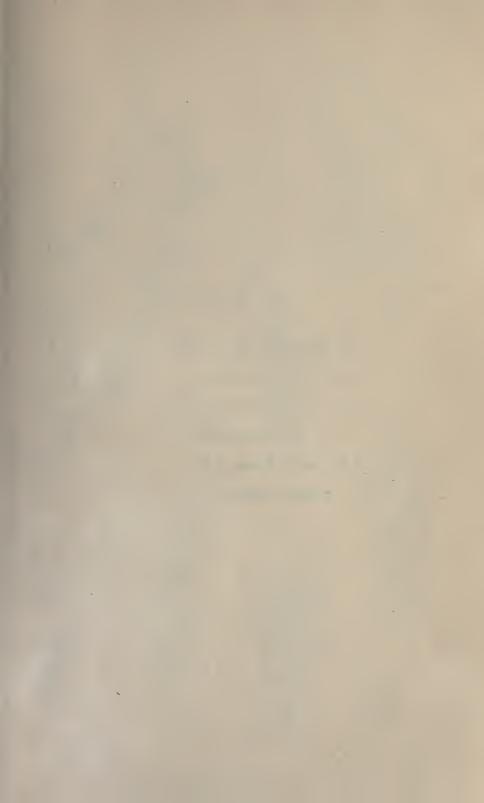
гіс. 1, 2.	Scrupocellaria reptans, p. 52.
3.	, nat. size.
4.	, with oœcium.
5.	, radical fibre with adhesive disk.
6.	, ditto modified so as to form a grapuel.
7.	—— -—, front avicularium.
8, 9.	SCRUPOCELLARIA SCRUPOSA, p. 45.
10.	, vibraculum.
1, 12.	Scrupocellaria scrupea, p. 50.
13.	————, nat. size.
14.	, vibracular cell.



T.H. del. A.T Hollack lith.

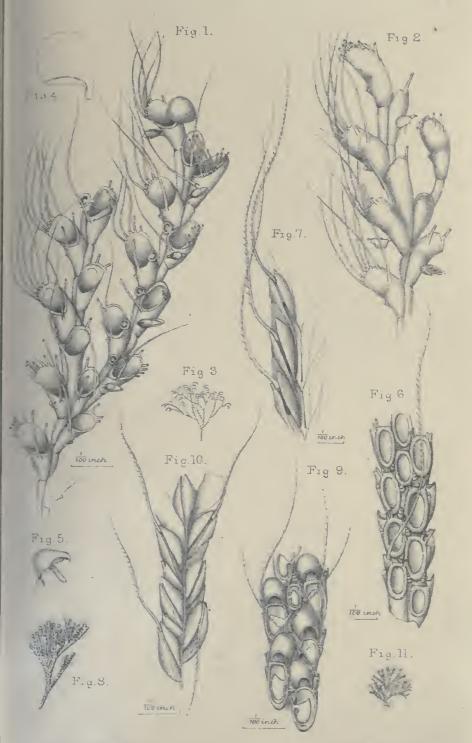
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## PLATE VIII.

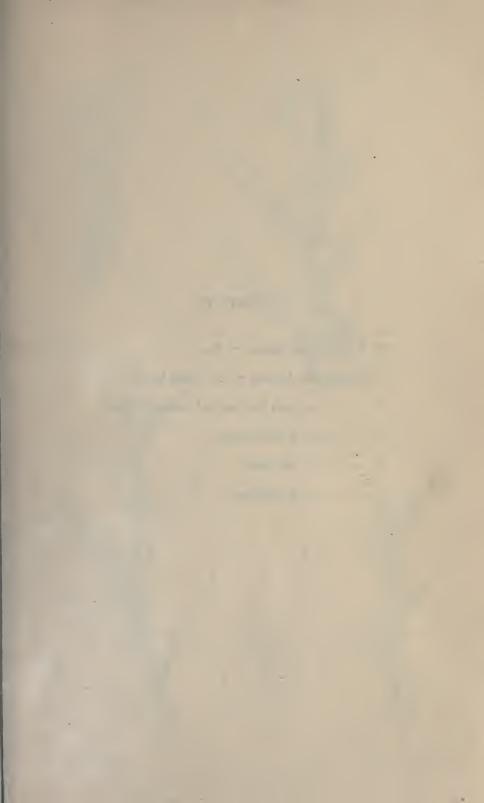
- 1, 2. Bicellaria ciliata, p. 68.
  - 3. , nat. size.
  - 4. —— , oœcium.
  - 5. ——, avicularium.
- 6-8. Caberea Ellisii, p. 59.
- 9-11. CABEREA BORYI, p. 61.



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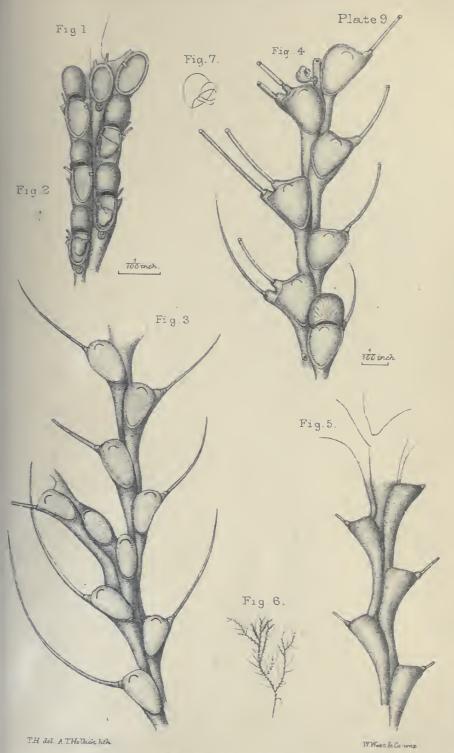




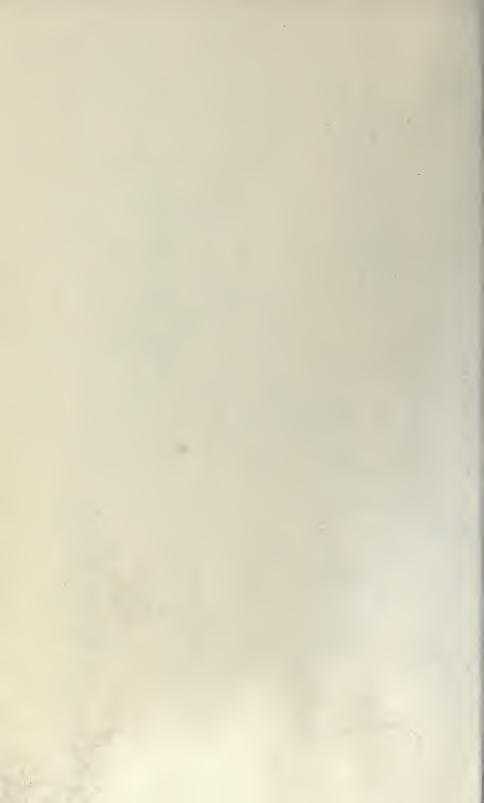
## PLATE IX.

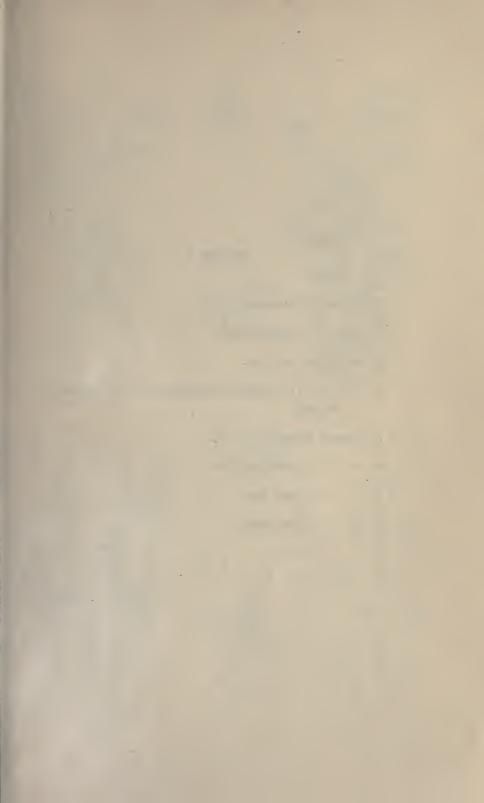
FIG.

- 1, 2. MENIPEA JEFFREYSII, p. 42.
  - 3. BICELLARIA ALDERI, p. 70; usual form.
  - 4. ———, with occium and a double spine.
  - 5. , dorsal surface.
  - 6. , nat. size.
  - 7. , avicularium.



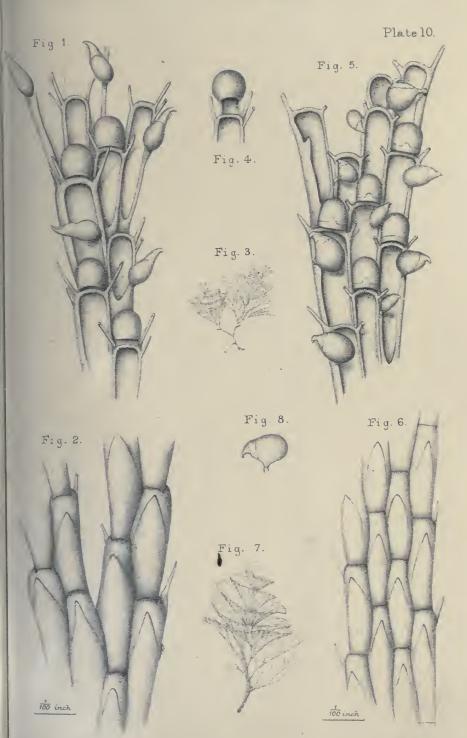
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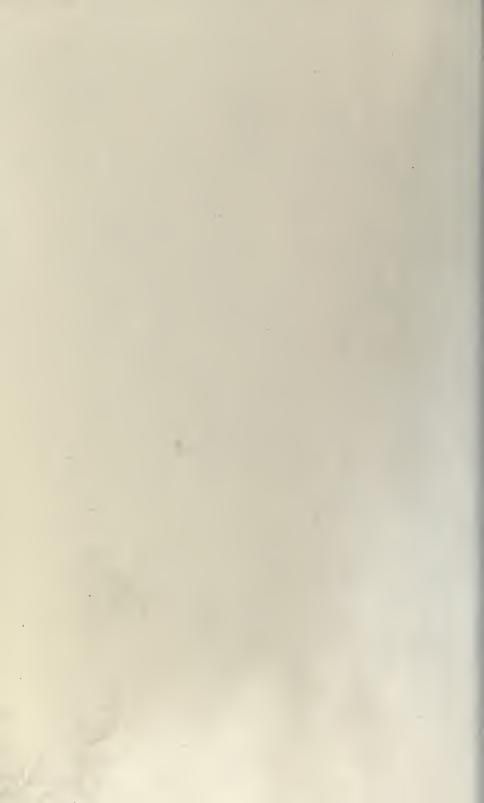
# PLATE X.

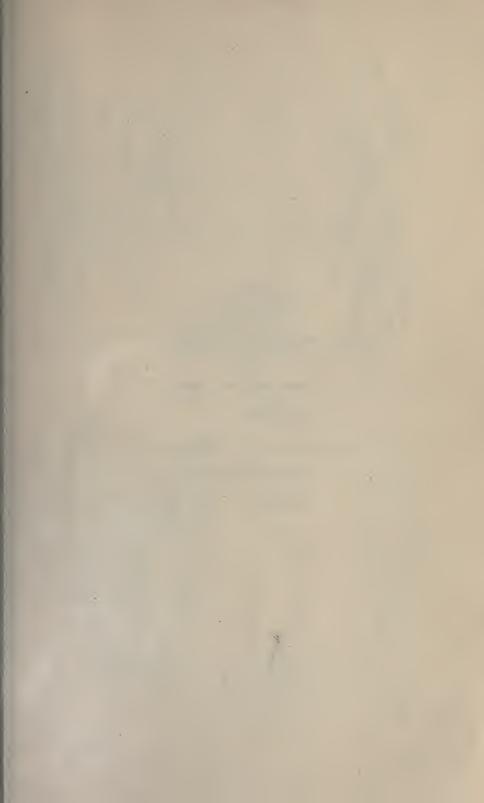
1. Bugula avicularia, p. 75.
2. ————, dorsal surface.
3. ————, nat. size.
4. ——, showing the attachment of the occium to the cell.
5. Bugula turbinata, p. 77.
6. ————, dorsal surface.
7. ——, nat. size.
8. ———, avicularium.



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W. West & C? imp.

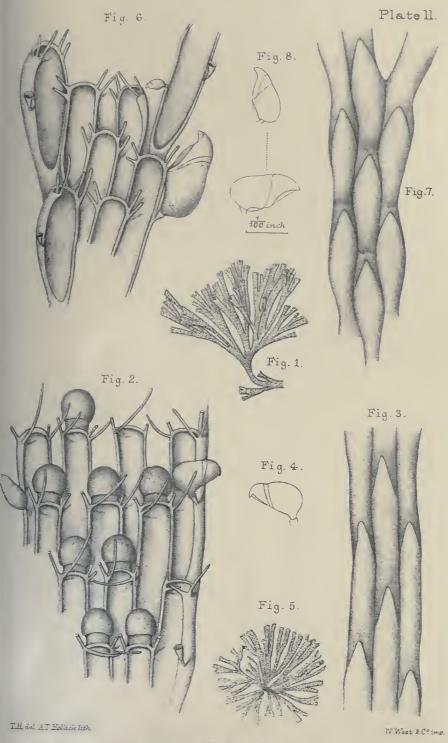




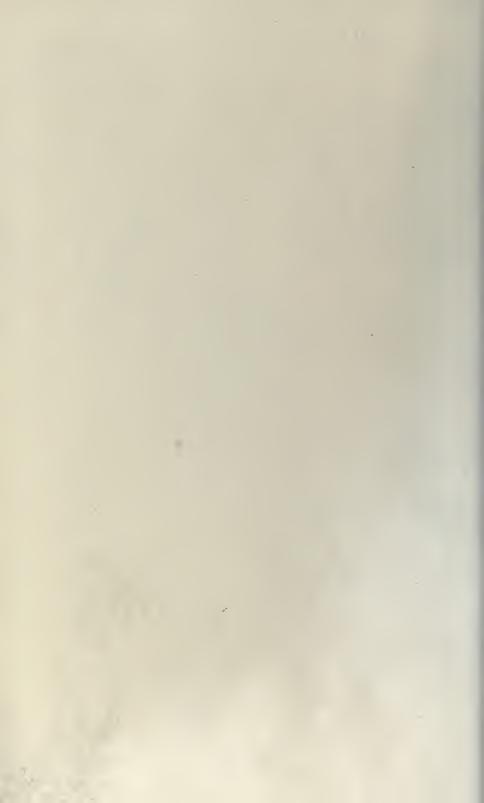
### PLATE XI.

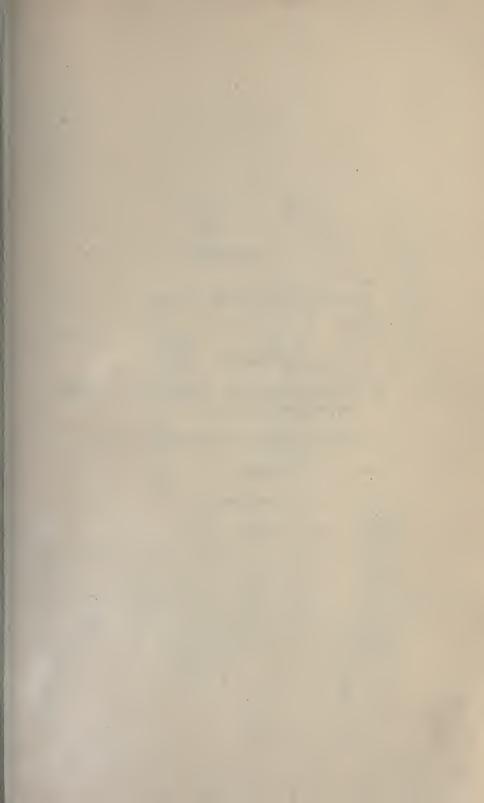
FIG.

- 1. Bugula flabellata, p. 80; a portion of a shoot, nat. size.
- 2, 3. , front and dorsal surfaces.
  - 4. ——, avicularium.
  - 5. Bugula calathus, p. 82; nat. size.
- 6, 7. , front and dorsal surfaces.
  - 8. , avicularia.



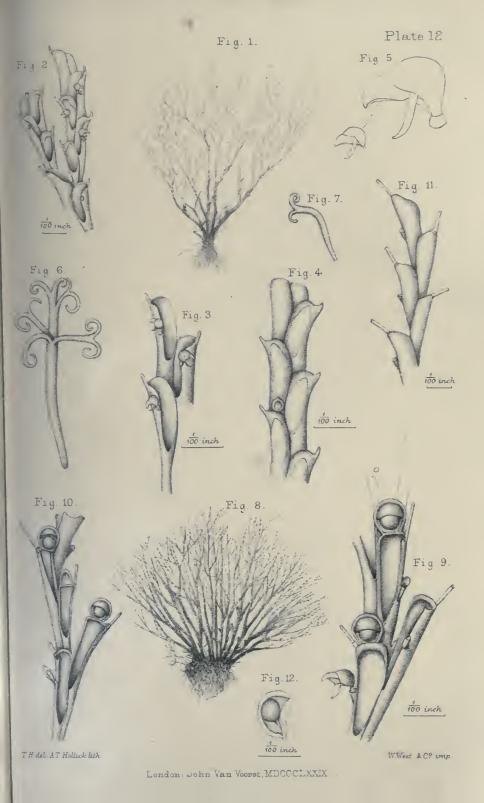
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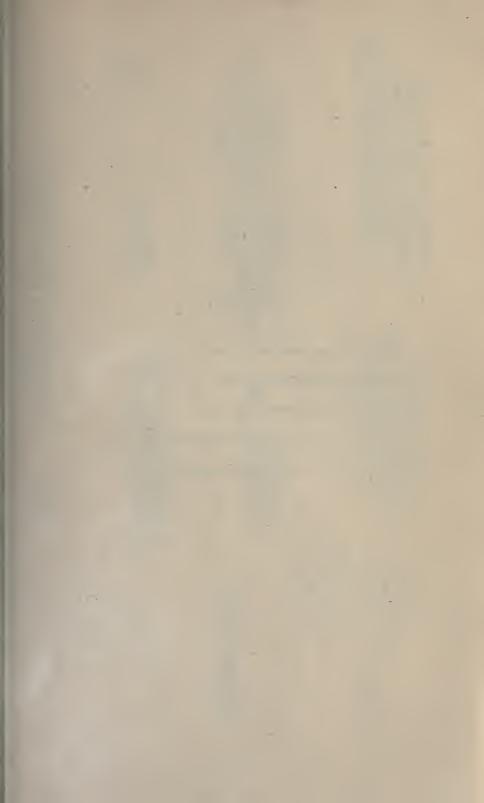


## PLATE XII.

All.
1. Bugula plumosa, p. 84; nat. size.
2-4. ———.
5. ————, avicularia.
6, 7. Bugula gracilis, var. uncinata, p. 86; prehensile appendages. See Plate XV.
8. Bugula purpurotincta, p. 89; nat. size.
9, 10. ————, zoœcia.
11. ————, dorsal surface.
12. ———, oœcium.



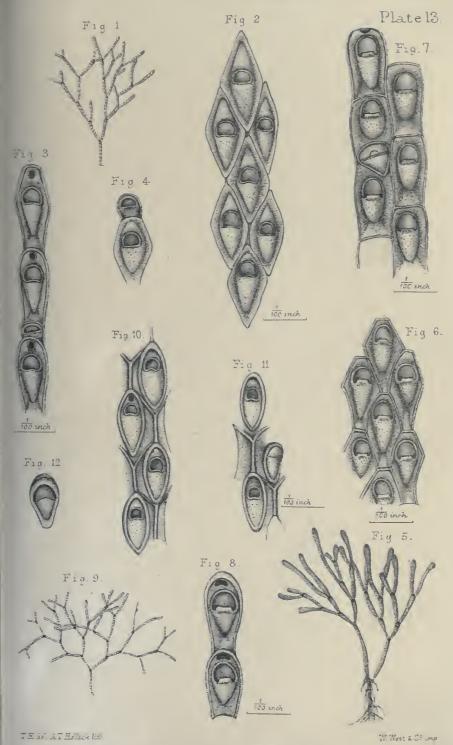




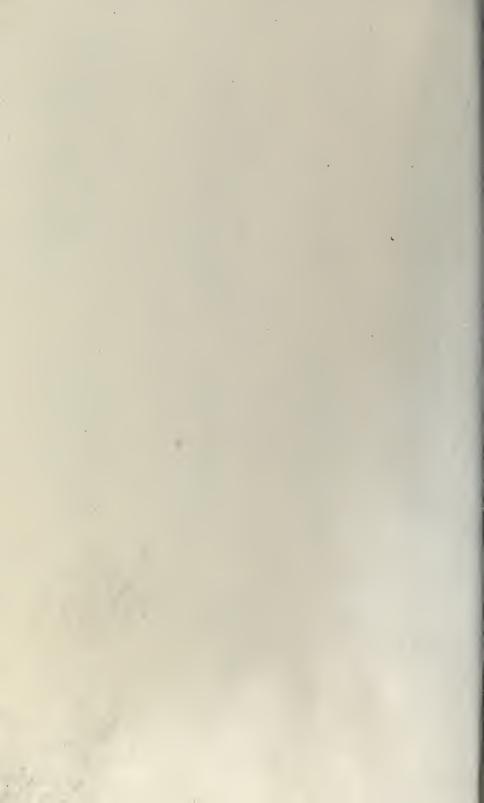
## PLATE XIII.

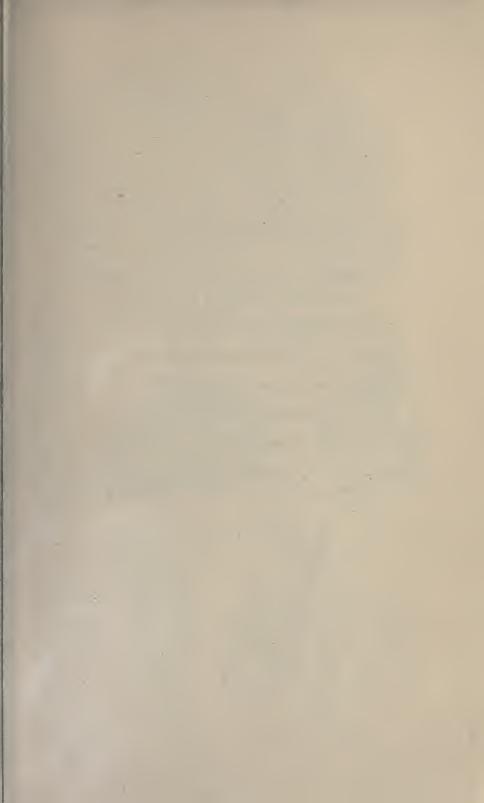
FIG.

- 1-4. Cellaria fistulosa, p. 106.
- 5-8. Cellaria sinuosa, p. 109.
- 9, 10. Cellaria Johnsoni, p. 112.
  - 11. , showing the avicularium in situ.
  - 12. , avicularium detached.



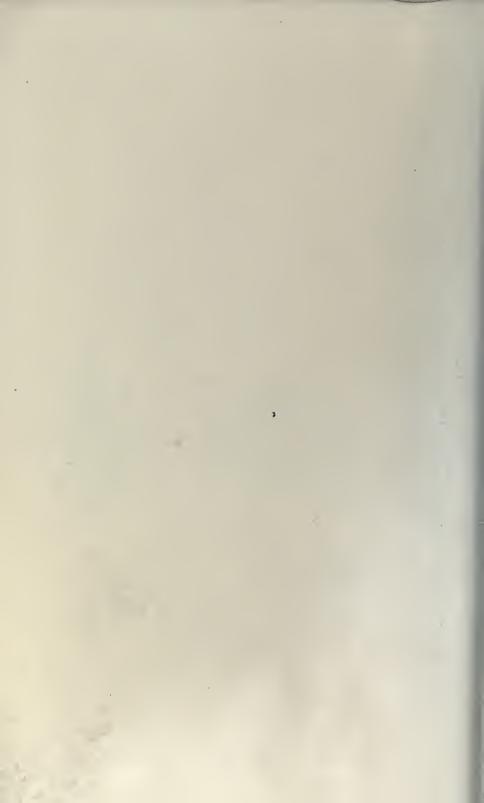
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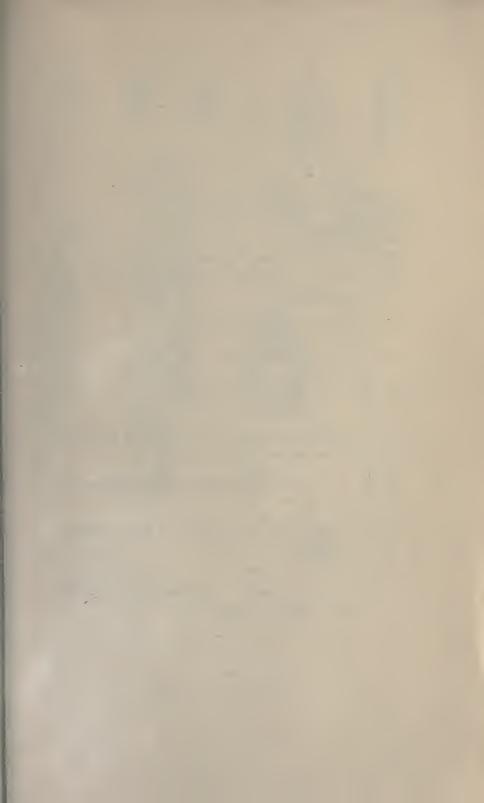




#### PLATE XIV.

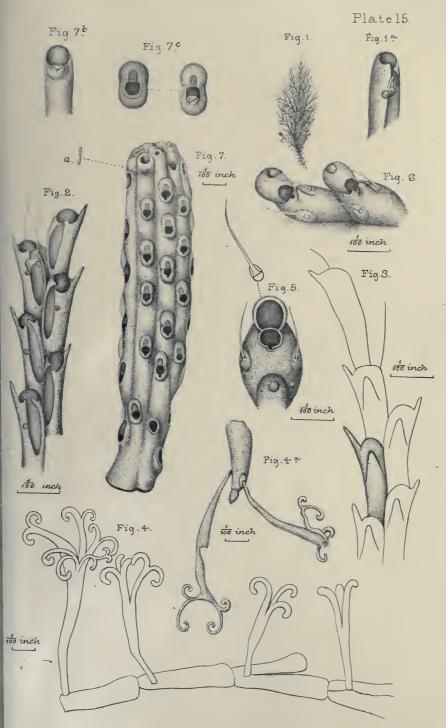
- Flustra carbasea, var., p. 123; from a specimen in Mr. Norman's collection. See Plate XVI.
- 2. Bugula Murrayana, p. 92; nat. size.
- 3. , var. a (FRUTICOSA), nat. size.
- 4. \_\_\_\_, zoœcia of the normal form.
- 5. , zoœcia of var. fruticosa.
- 6. , dorsal surface.
- 7-9. ——, avicularia, showing the difference in size between those on the front and margin of the cells.
  - 10. Flustra foliacea, p. 115; palmate form. See Plate XVI.





# PLATE XV.

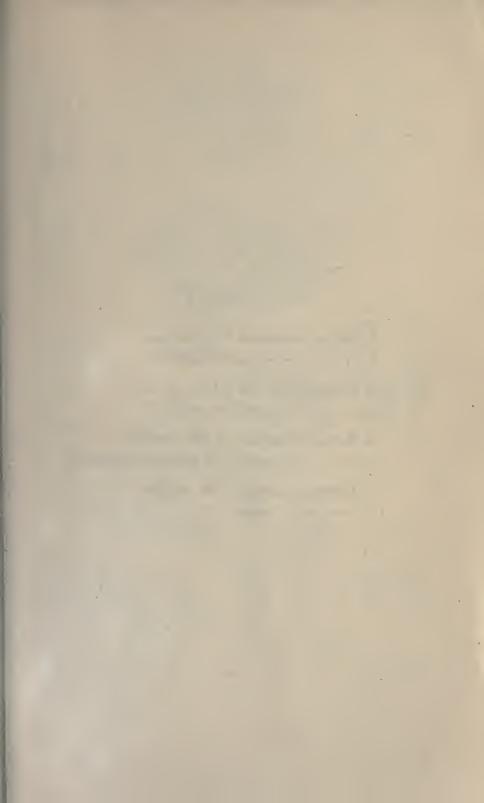
FIG.
1. Bugula gracilis, var. uncinata; p. 86, nat. sizc.
1 a. — , a single cell, showing the position of the
avicularium.
2. ——, zoœcia, front view.
3. ——, dorsal surface.
4. ——, prehensile appendages.
4 a. — , primary cell and appendages.
5. Schizoporella vulgaris, p. 244; showing the structure of the cell. See Plate XXXVII.
6. ——, var. with umbonate ovicell, and mucro on the front wall.
7, 7 a. Escharoides quincuncialis, p. 339; fragment, magnified and nat. sizc.
7 b. ———, young cell.
7 c. —, occium and orifice, forming together
the "mamillary rising."



T.H.del.A.T.Hollick lith.

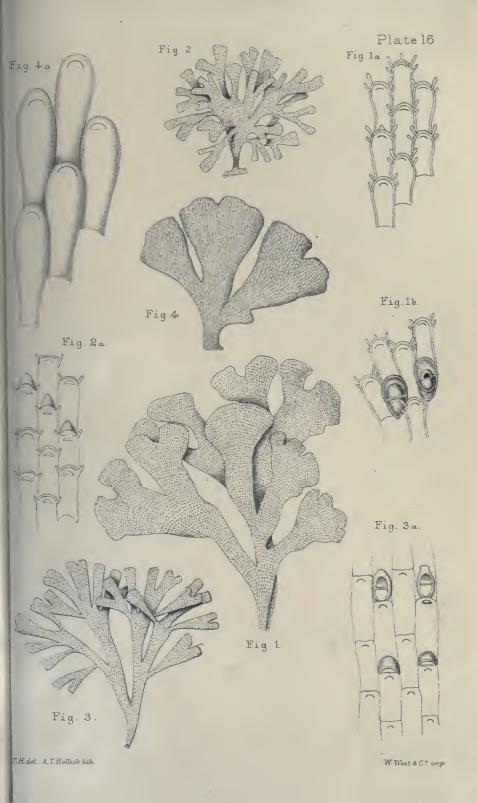
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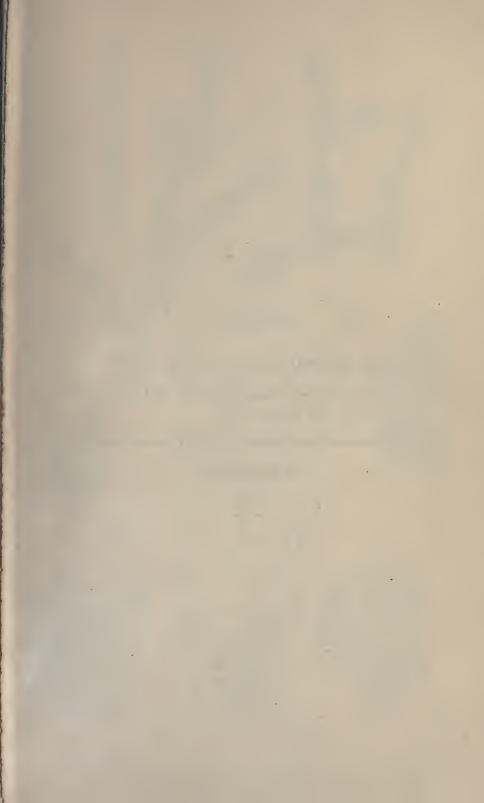


# PLATE XVI.

FIG.
1. Flustra foliacea, p. 115; nat. sizc.
1 a, 1 b. ——, zoecia magnified.
2. Flustra papyracea, p. 118; nat. size.
2 a. ——, zoœcia and ovicells.
3. Flustra securifrons, p. 120; nat. sizc.
3 a. ——, zoœcia, with avicularia and ovicells.
4. Flustra carbasea, p. 123; nat. sizc.
4 a. — , zoœcia.

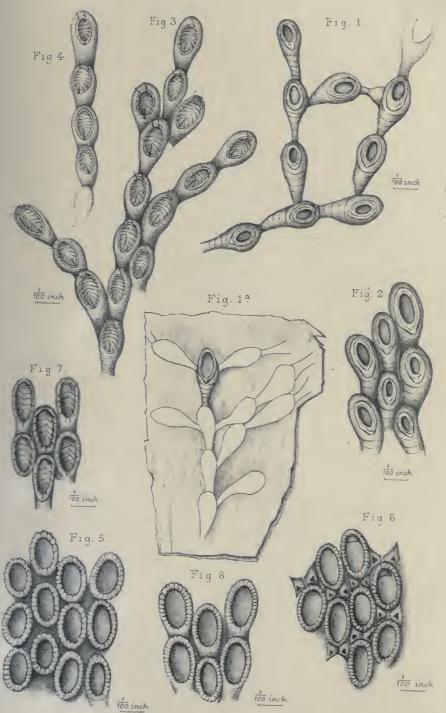






### PLATE XVII.

- 1, 2. Membranipora catenularia, p. 134.
- 3, 4. Membranipora monostachys, p. 131; linear form. See Plate XVIII.
- 5, 6, 8. Membranipora Lacroixii, p. 129; various states.
  - 7. , with marginal spines.



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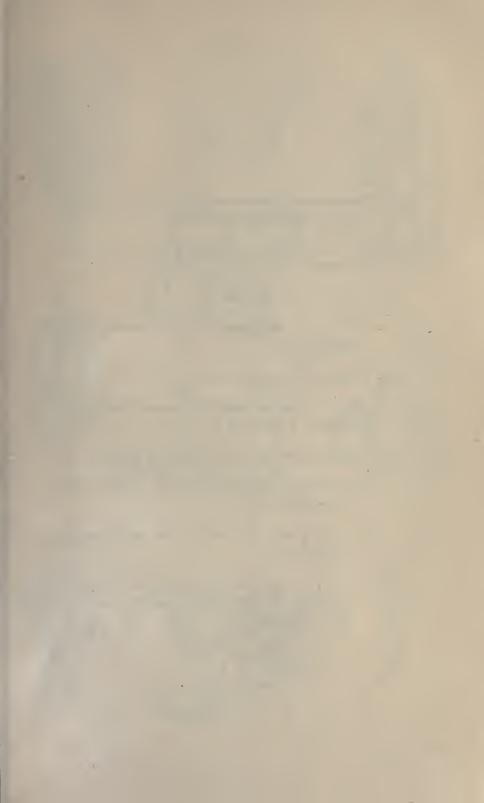


	PLATE XVIII.
1. N	IEMBRANIPORA MONOSTACHYS, p. 131; nat. size, showing the linear habit of growth.
2. –	————, a colony, including one of the rudi- mentary cells.
3. –	—, var. fossaria.
4	
5. N	Membranipora membranacea, p. 140.
6	, with a number of abnormal eells ("tower-zoœeia" of Nitsche).
7. N	MEMBRANIPORA HEXAGONA, p. 143. After Busk.
8. S	Schizoporella Hyalina, p. 271; a colony with

9. — , with the occia borne on imperfectly

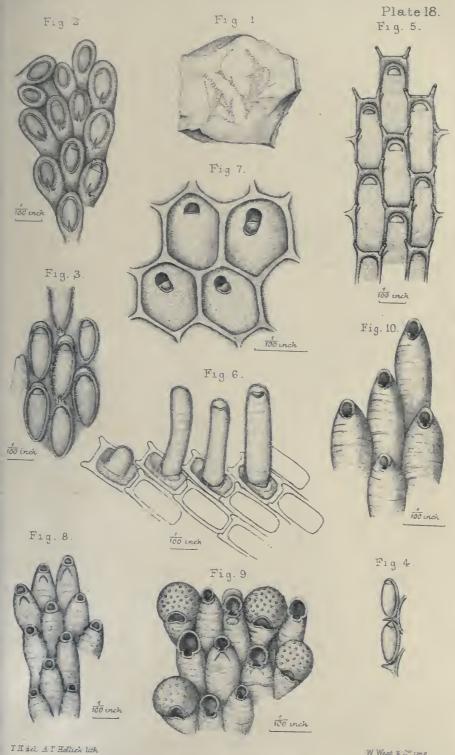
10. — , var. with hyaline walls and the lower

margin of the orifice deeply sinuated. See Plate

suborbieular orifice.

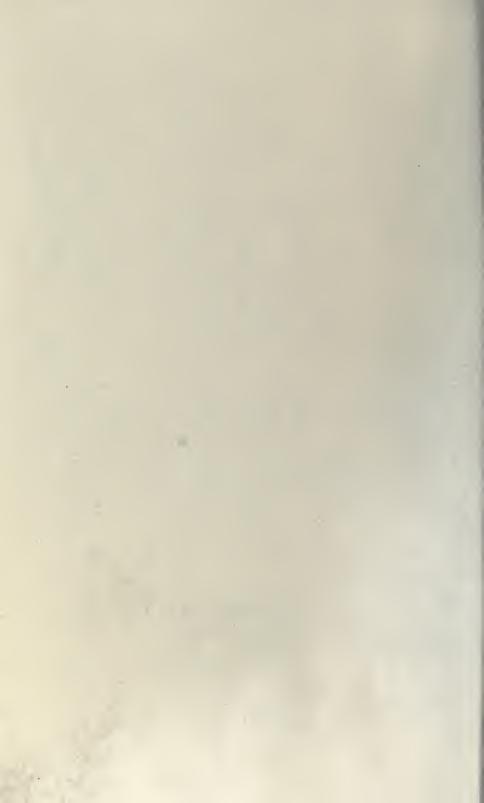
XLV. figs. 2 and 3.

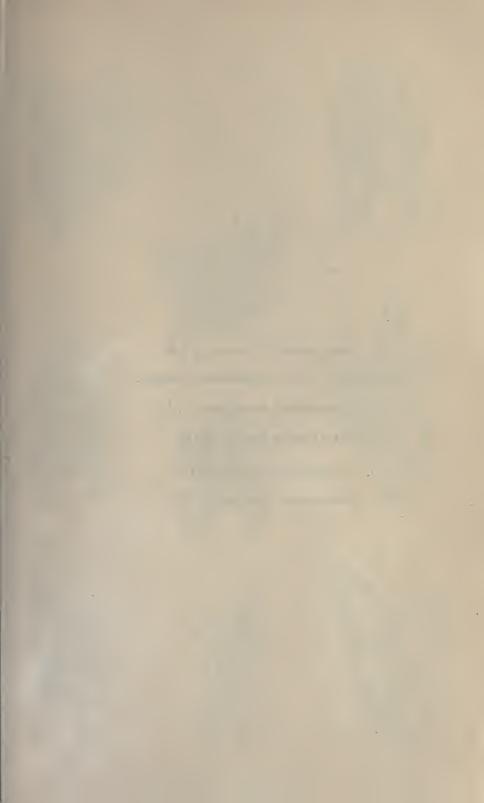
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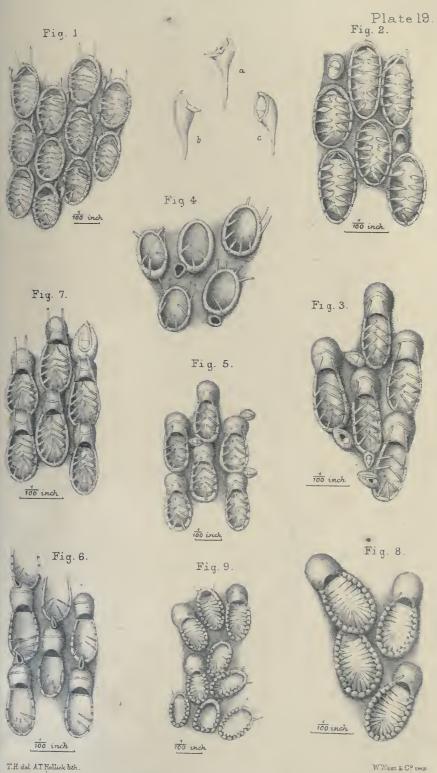
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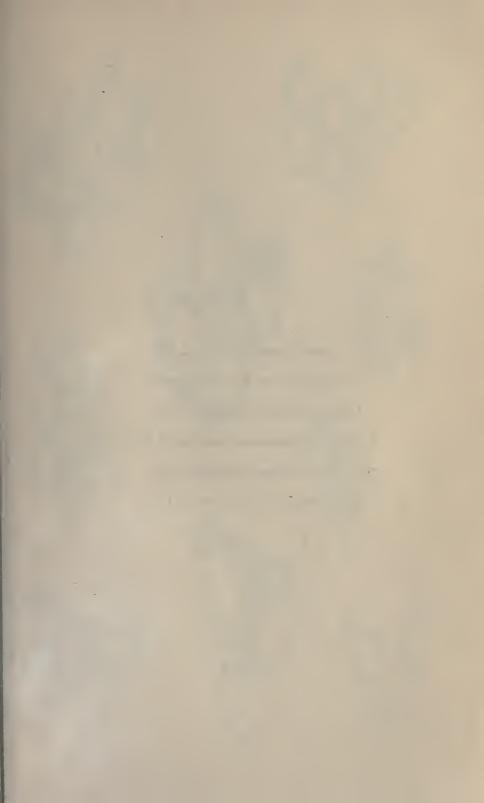


## PLATE XIX.

- 1. Membranipora spinifera, p. 149.
- a, b, c. —, the pedunculate avicularia.
  - 2. Membranipora flustroides, p. 151.
  - 3-6. Membranipora lineata, p. 143.
    - 7. MEMBRANIPORA CRATICULA, p. 147.
  - 8, 9. Membranipora discreta, p. 152.





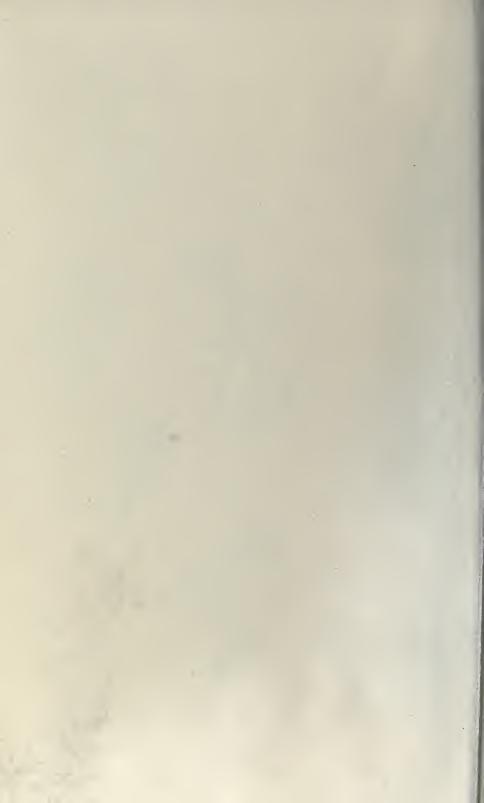


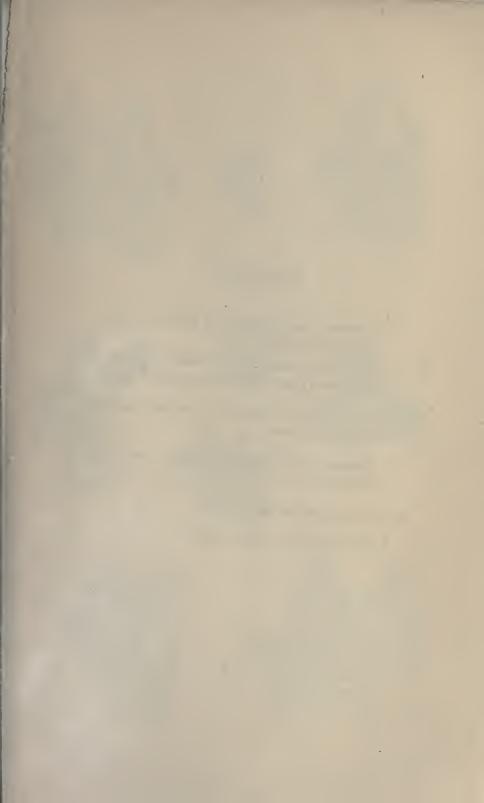
## PLATE XX.

- 1, 2. Membranipora imbellis, p. 160.
  - 3. Membranipora Dumerilii, p. 156.
  - 4. Membranipora unicornis, p. 154.
- 5, 6. Membranipora curvirostris, p. 153.
- 7, 8. Membranipora solidula, p. 158.
  - 9. Membranipora nodulosa, p. 170.

T.H del AT Hollick lith.

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#### PLATE XXI.

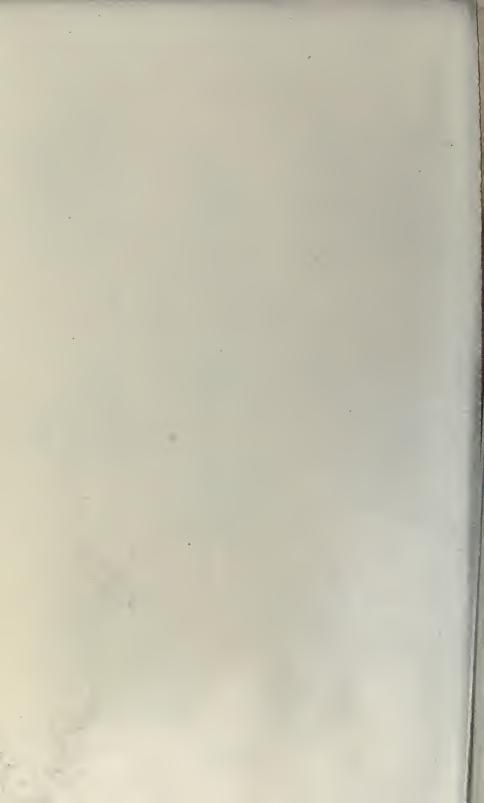
- 1. Membranipora Flemingii, p. 162; from a fully developed specimen.
- 1 a, 1 b. ————, young zoœcia with the full complement of spines; avicularia partially developed.
  - 2, 3. ———, var., showing the produced portions of the cell below.
    - 4. Membranipora cornigera, p. 164. See Plate XXII. fig. 4.
  - 5, 6. Membranipora aurita, p. 159.
    - 7. Setosella vulnerata, p. 181.

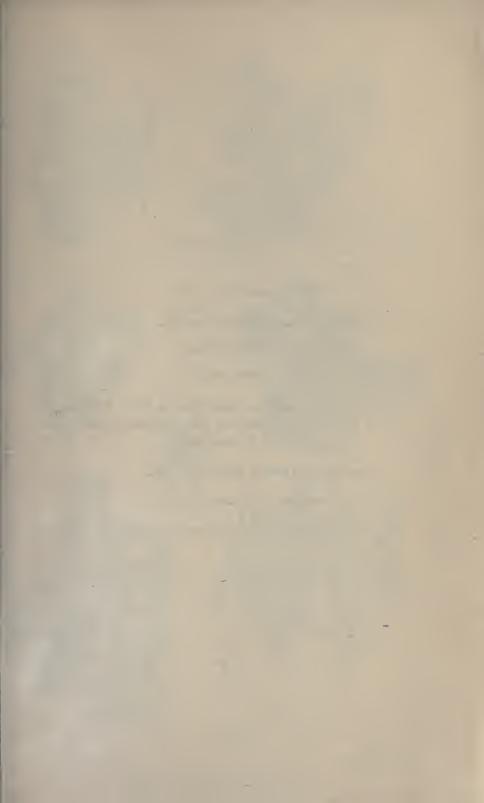


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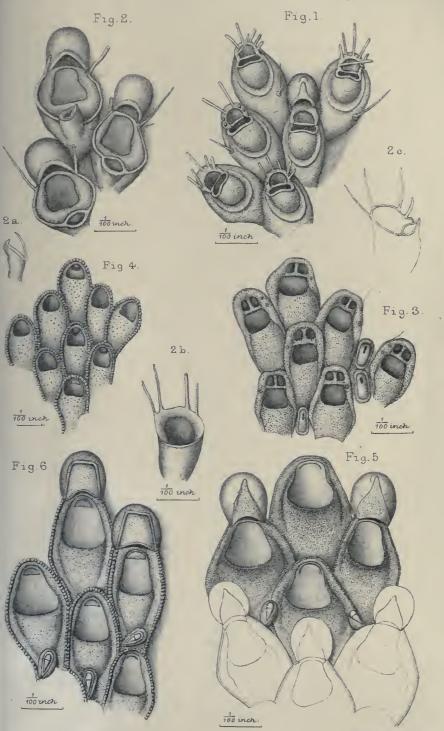
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### PLATE XXII.

- 1. MEGAPORA RINGENS, p. 172.
- 2. Membranipora minax, p. 169.
- 2 a. , avicularium.
- 2 b, 2 c. , young cells.
  - 3. Membranipora cornigera, p. 164; from an old specimen, showing the structure of the upper portion of the aperture.
  - 4. Membranipora Rosselii, p. 166.
  - 5. Membranipora trifolium, p. 167.
  - 6. , var. a (QUADRATA).



T.H. del. A.T. Hollick lith.

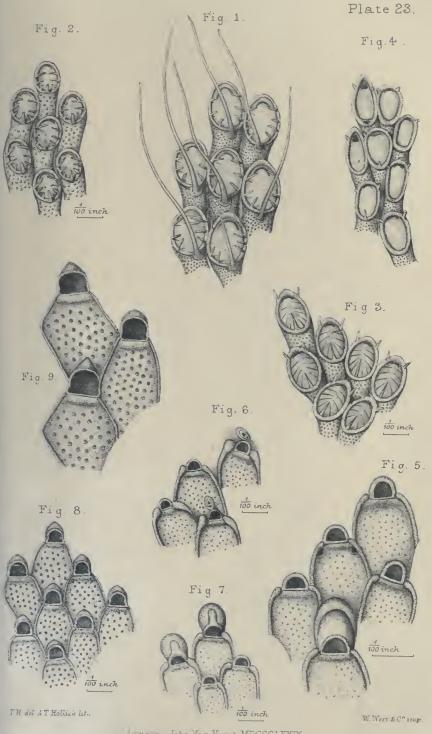
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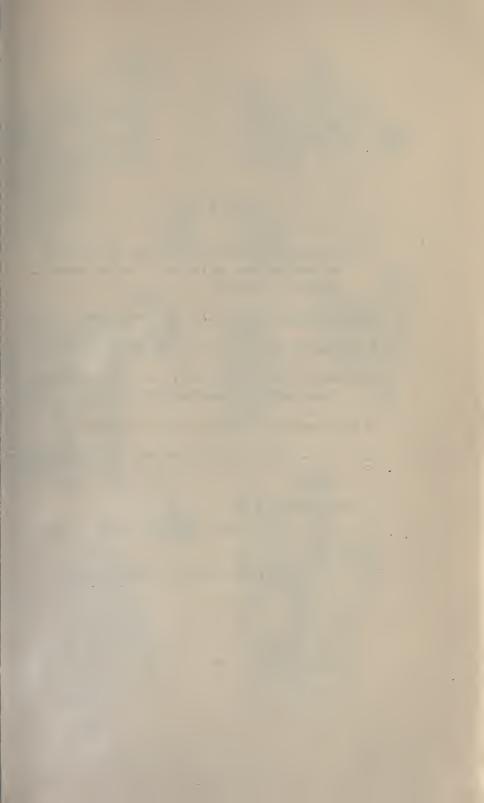
#### PLATE XXIII.

- 1. MEMBRANIPORA PILOSA, p. 137; normal form.
- 2, 3. , var.  $\alpha$  (DENTATA).
  - 4. , var. with three spines.
  - 5. MICROPORA CORIACEA, p. 174.
  - 6. , with avicularia.
  - 7. - , with oœcia.
  - 8. MICROPORA COMPLANATA, p. 175.
  - 9. , more highly magnified, to show the constriction of the orifice.



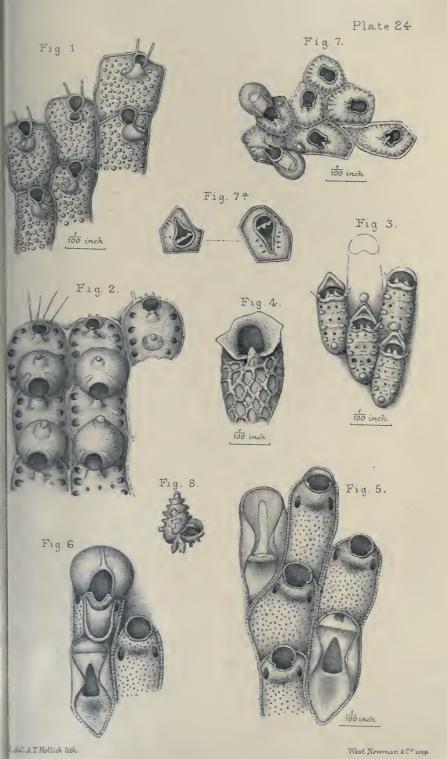
nan John Jan Voorst MDCCCLXXXX





#### PLATE XXIV.

- 1. Schizoporella linearis, p. 247; var. with a single avicularium borne on the side of a short rostrum. See Plate XXXVIII.
- 2. Schizoporella umbonata, p. 264. After Busk.
- 3. Cribrilina punctata, var., p. 190. See Plate XXVI.
- 4. Lepralia Pallasiana, p. 297; var. with much produced peristome. See Plate XXXIII.
- 5. Steganoporella Smitth, p. 178; with avicularia.
- 6. , showing the occium with the lid thrown back.
- 7. LEPRALIA EDAX, p. 311.
- 7 a. —, the large, pointed avicularia. After Smitt.
- 8. , nat. size, incrusting a univalve shell.



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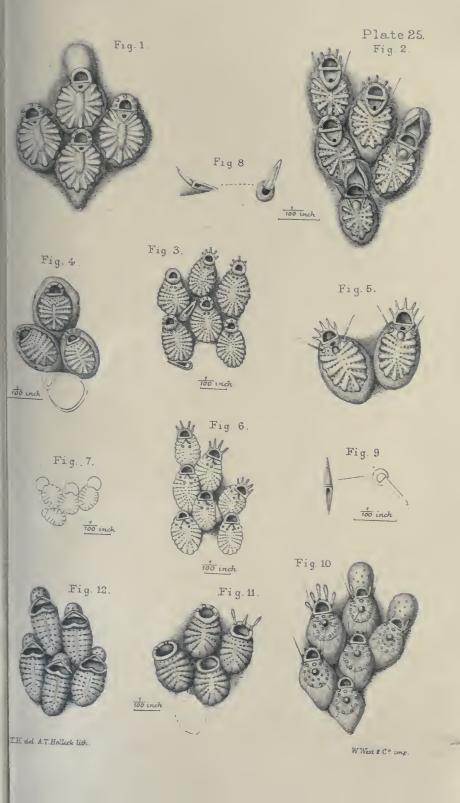
# . PLATE XXV.

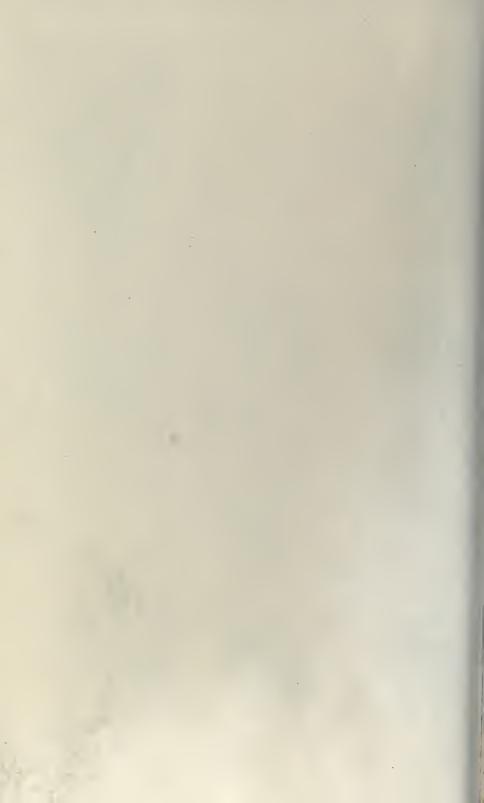
FIG.

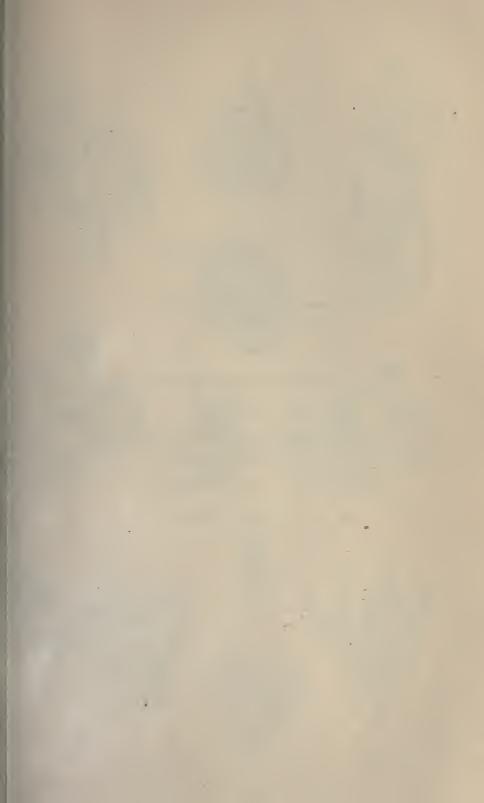
CRIBRILINA RADIATA, p. 185; innominata form.
 —, radiata form.
 —, var.
 — with vibraculoid setæ.
 —, radiata form.
 —, dwarf var.
 —, avicularia, showing the varieties of form.

10. CRIBRILINA GATTYÆ, p. 198.

11, 12. CRIBRILINA ANNULATA, p. 193.

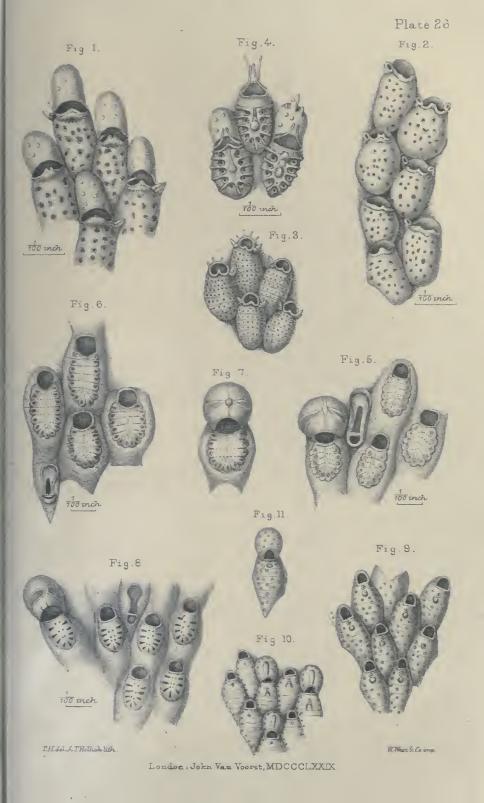


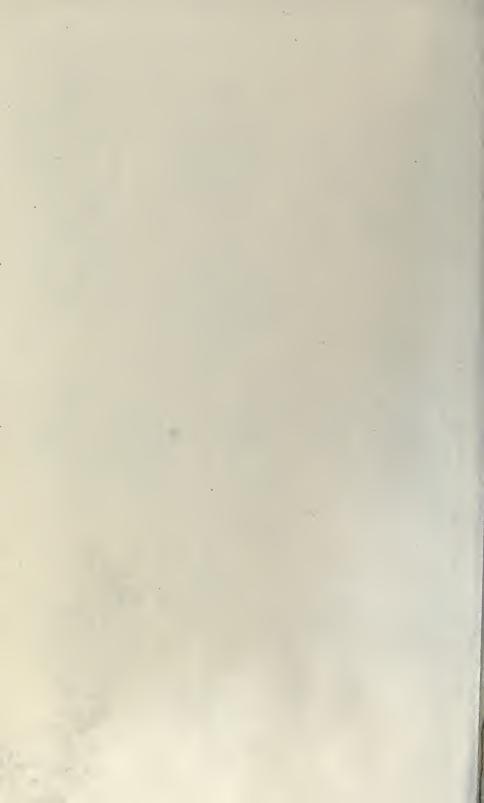


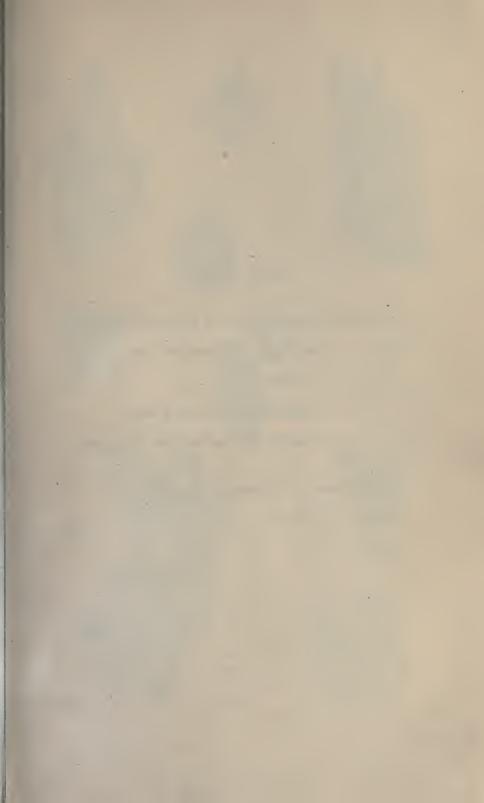


### PLATE XXVI.

- 1-3. Cribrilina punctata, p. 190. See Plate XXIV. fig. 3.
  - 4. , var. a.
- 5-7. Cribrilina figularis, p. 196.
  - 8. ———, var. a (FISSA).
  - 9. Microporella impressa, p. 214. See Plate XXIX. figs. 10, 11.
  - 10. , var.  $\beta$  (glabra).
  - 11. —, cell with occium.

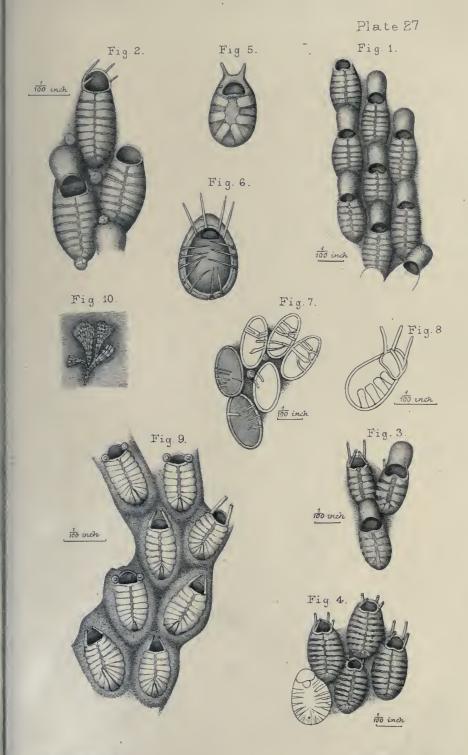




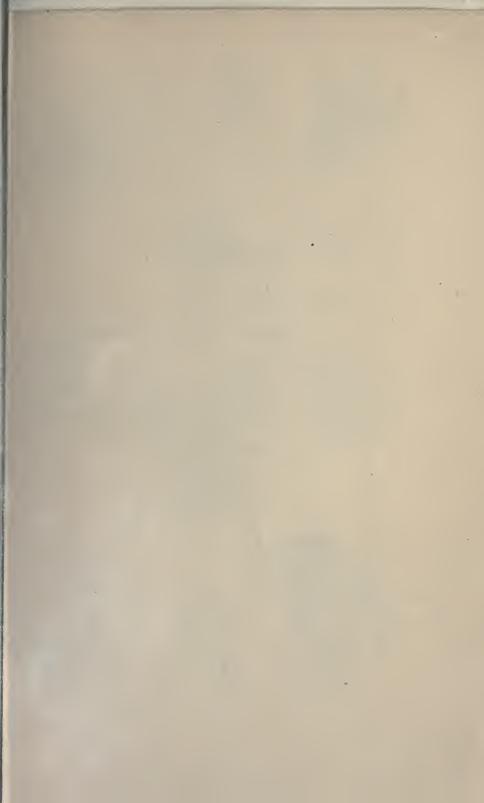


# PLATE XXVII.

FIG.	
1-4.	Membraniporella nitida, p. 200; various forms.
5.	, var. with small number of ribs.
6.	——, primary cell.
7.	————, group of cells in an early stage.
8.	, outline showing the structure of the
	cell.
9.	MEMBRANIPORELLA MELOLONTHA, p. 202.
10.	, nat. size.



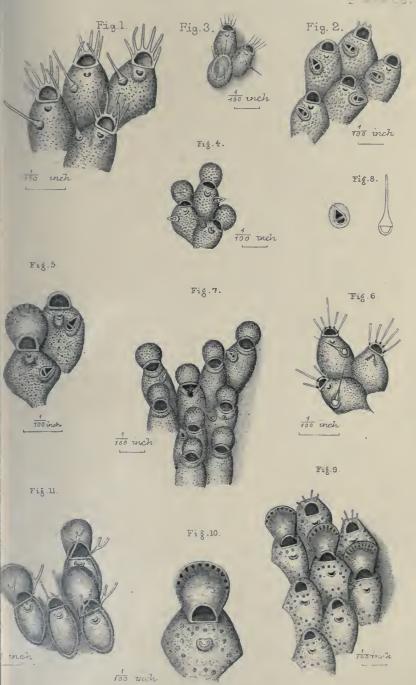




## PLATE XXVIII.

FIG.	
1.	MICROPORELLA CILIATA, p. 206.
2.	, granular var. with normal avicularia.
3.	———, primary cell.
4.	——, dwarf var.
5.	, var. with umbo and areolated ovicell.
6.	, Australian var.
7.	, var. personata.
8.	, two forms of avicularium.
10.	Microporella Malusii, p. 211.
	See Plate XXIX. fig. 12.
11.	——, var. β (vitrea).

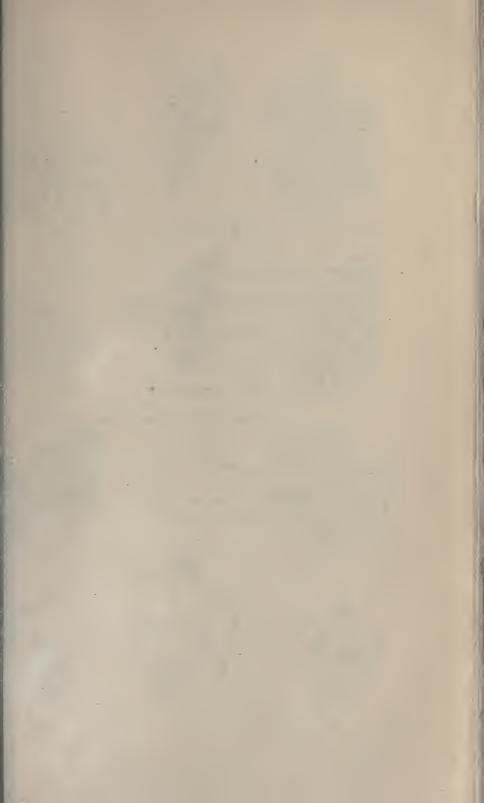
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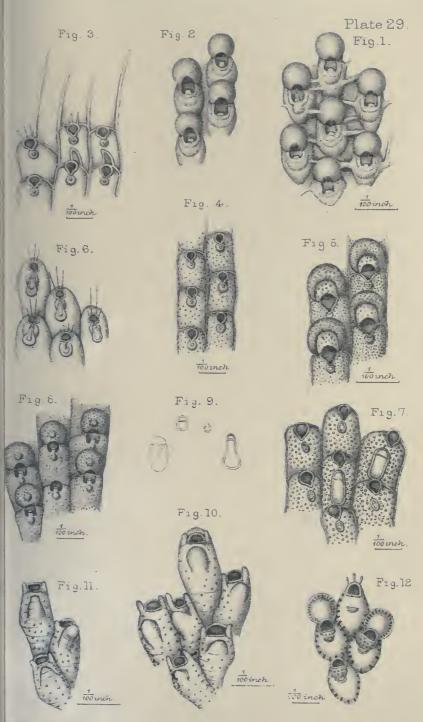




### PLATE XXIX.

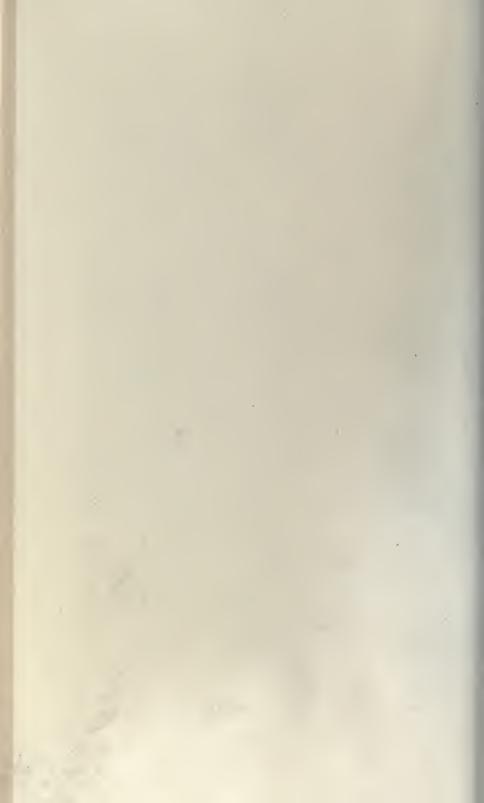
- 1, 2. Porella minuta, p. 326.
- 3-5. Schizoporella auriculata, p. 260.
  - 6. with spatulate avicularia.
  - 7. —— , var. α (OCHRACEA).
  - 8. ———, var. β (cuspidata).
  - 9. , showing the different forms of avicularium.
- 10, 11. Microporella impressa, p. 214; var. a.
  - 12. MICROPORELLA MALUSII, p. 211, var. invested by a smooth calcareous crust \*.

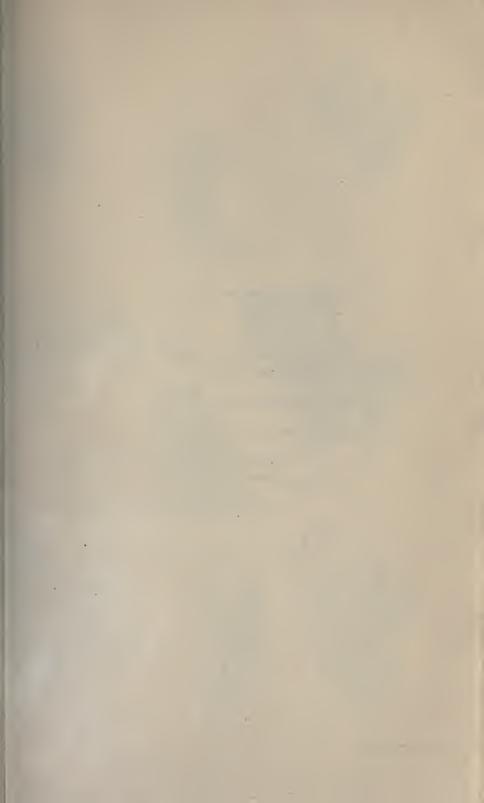
<sup>\*</sup> This figure is not referred to in the text.



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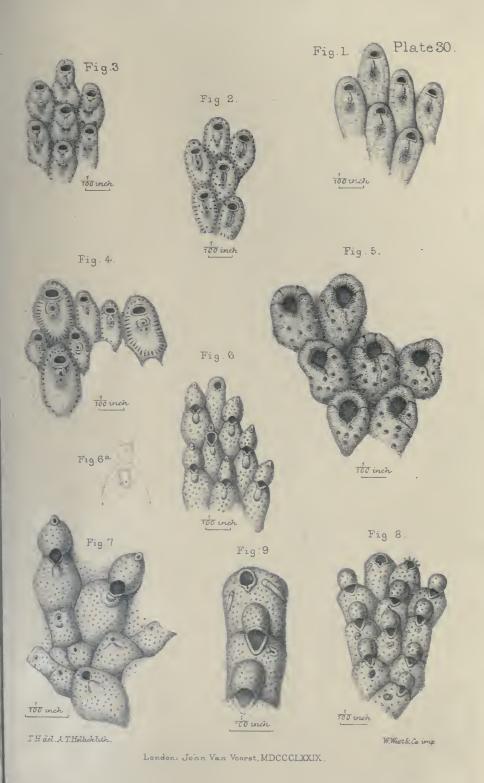


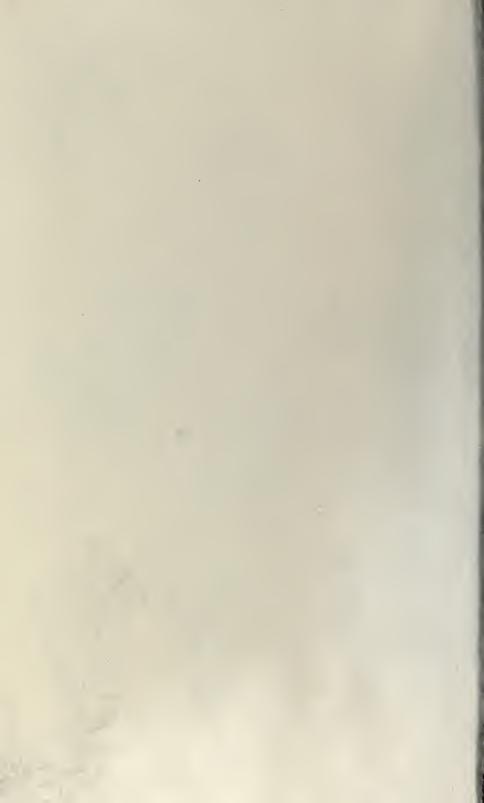
### PLATE XXX.

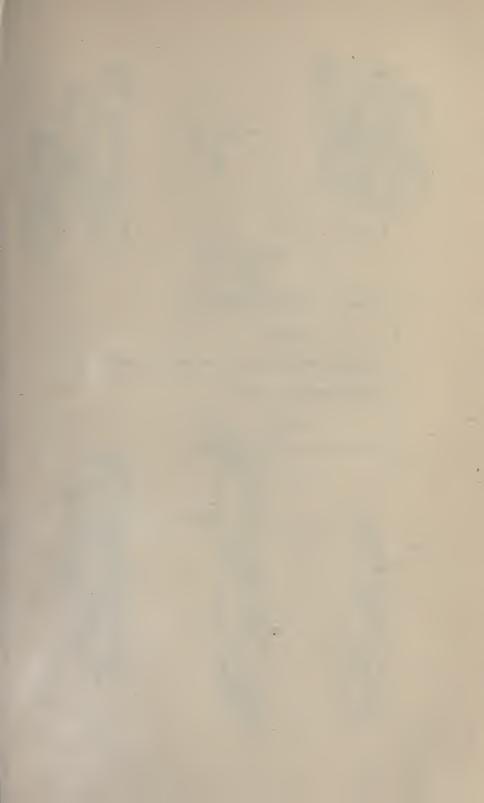
FIG.

1, 2.	MICROPORELLA VIOLACEA, p. 216.
3.	——, var. a.
4.	—————, Crag form, showing the diversities in the size of the zoœeium.
5.	Schizoporella cruenta, p. 270.
6.	Schizoporella venusta, p. 276.
6 a.	, showing the form of the orifice and the avicularian area.
7.	———, showing a group of more or less aborted cells.

8, 9. Schizoporella discoidea, p. 265.



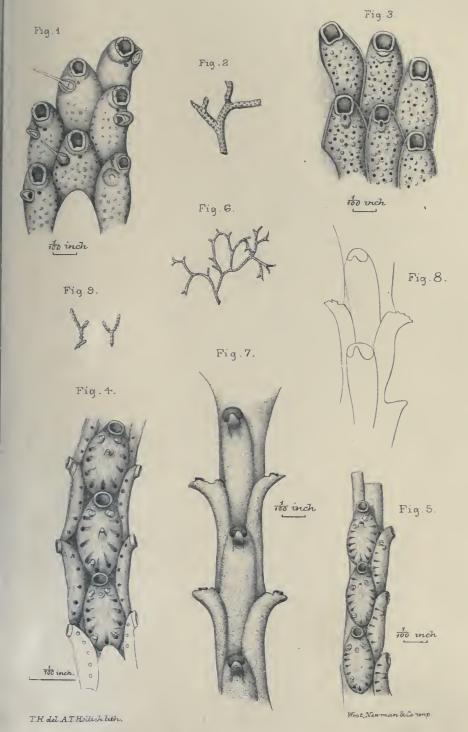




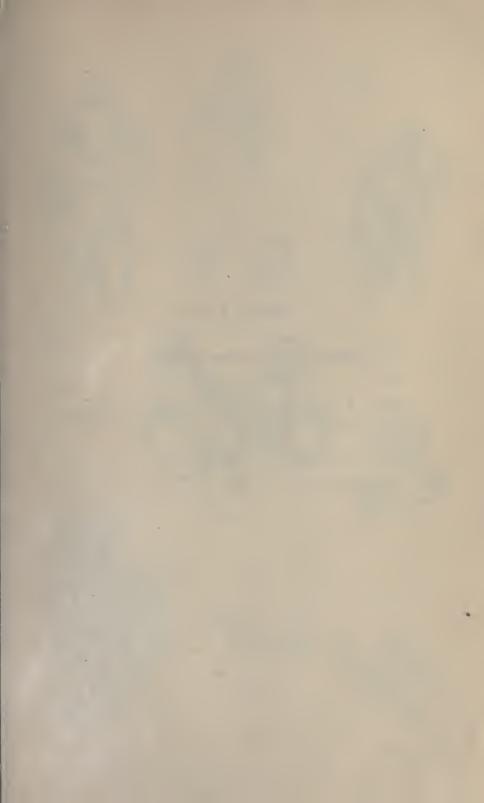
#### PLATE XXXI.

- 1. DIPORULA VERRUCOSA, p. 220.
- 2. \_\_\_\_\_, nat. size.
- 3. Lepralia foliacea, p. 300; crustaceous state\*.
- 4, 5. Porina borealis, p. 229.
  - 6. , nat. size.
- 7, 8. Palmicellaria elegans, p. 378.
  - 9. —— , nat. size.

<sup>\*</sup> There is no reference to this figure in the text.

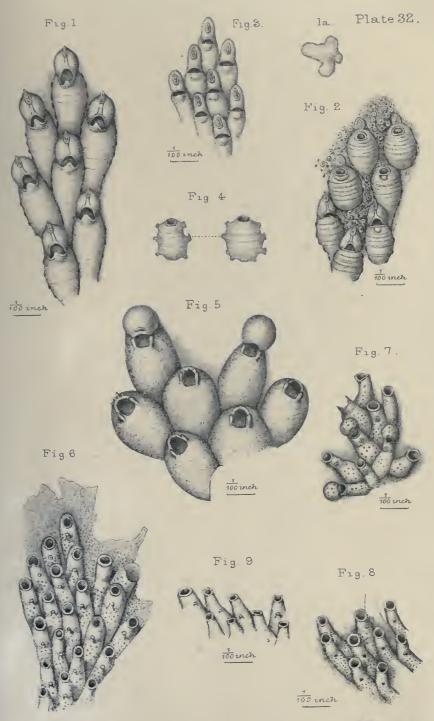






### PLATE XXXII.

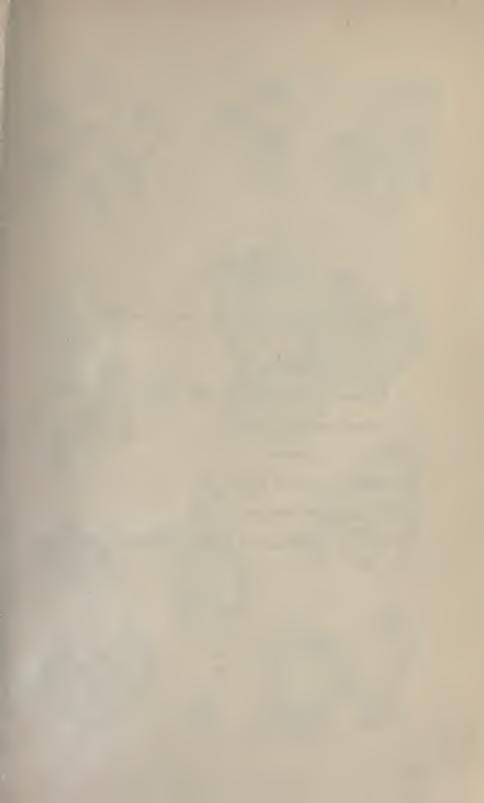
- 1-3. Chorizopora Brongniartii, p. 224.
- 1 a. , a colony, nat. size.
  - 4. ———, detached zoccia, showing the tubular connexions round the edge.
  - 5. LEPRALIA POLITA, p. 315.
- 6-9. Porina tubulosa, p. 230.



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### PLATE XXXIII.

1, 2. Lepralia Pallasiana, p. 297. See Plate XXIV. fig. 4.

3. ———, variety.

4. Lepralia canthariformis, p. 299. After Busk.

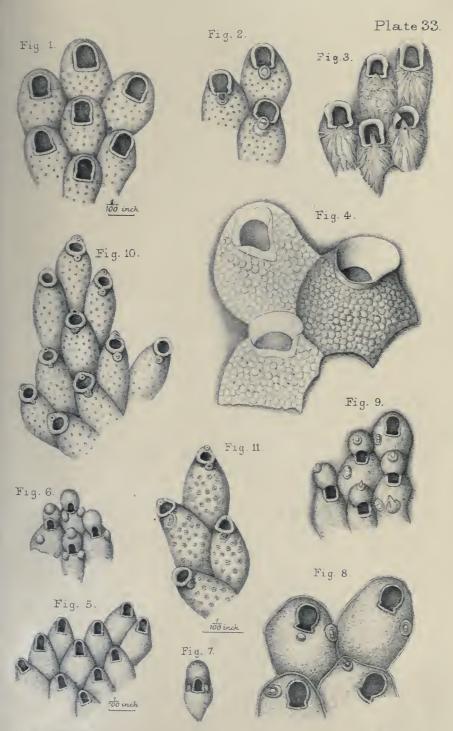
5, 6. Lepralia adpressa, p. 307.

7. ———, oœeium.

8, 9. Lepralia hippopus, p. 309.

10. Anarthropora monodon, p. 233.

11. ———, showing the stellate character of the pores.



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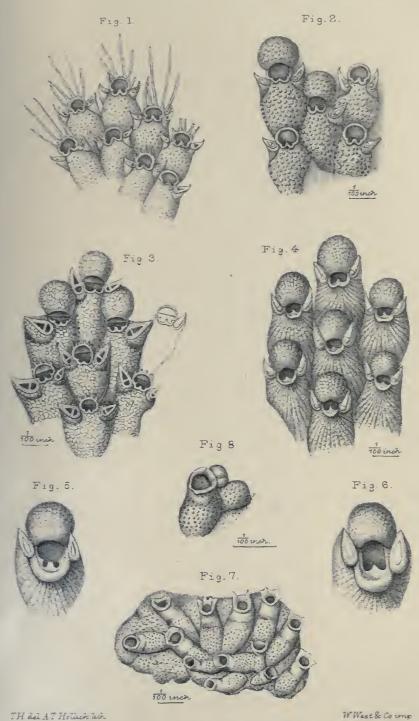
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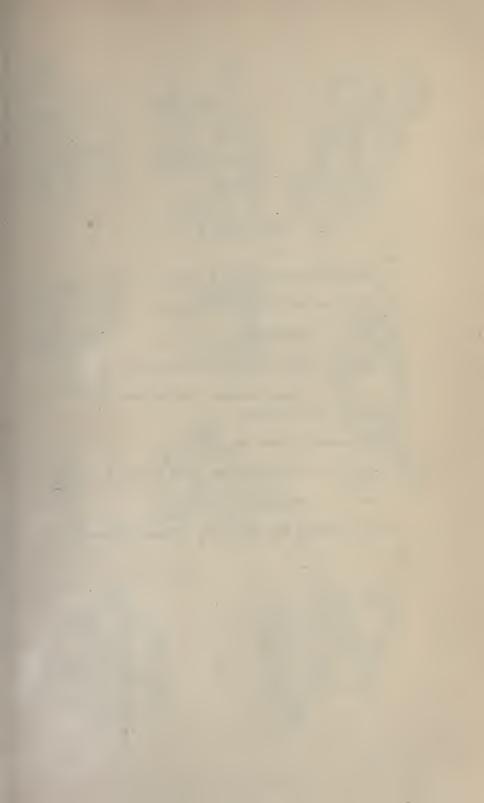
## PLATE XXXIV.

	ig. 1.	Mucronella coccinea, p. 376.
	2.	, granular form.
	3.	, tessellated form.
4-	6.	, var. mamillata.
	7.	LAGENIPORA SOCIALIS, p. 235.
	8.	, zoœcium with ovicel



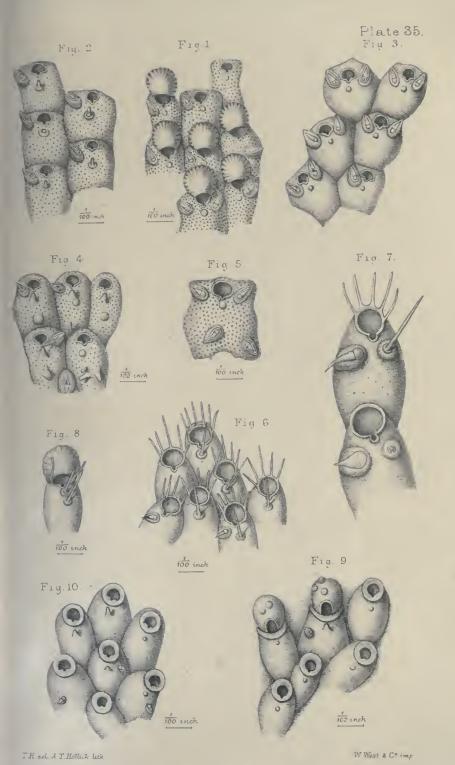
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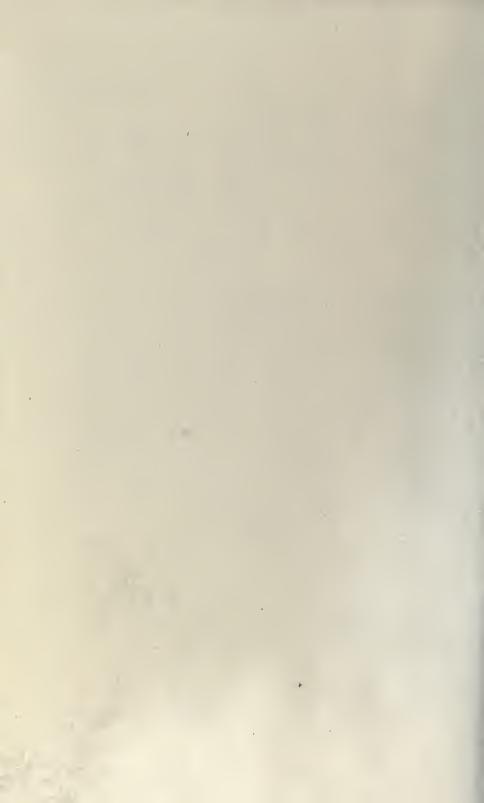


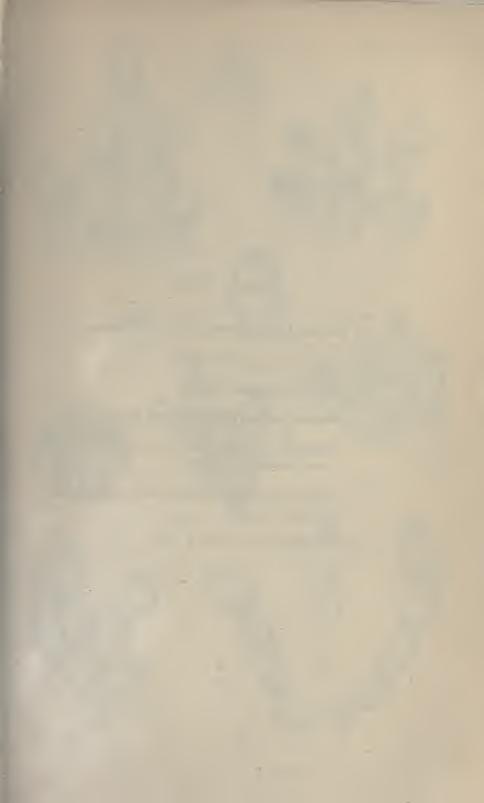


# PLATE XXXV.

o. 1. Schizoporella unicornis, p. 328; with occia.
2. —— , with a single avicularium.
3. —— , var. ANSATA.
4. ——, var. with umbonate processes.
5. — , a single zoœcium, with two lateral avicularia and two below.
6. Schizoporella spinifera, p. 241.
7. ——, two zoœcia, more highly magnified.
8. ——, zoœcium with ovicell.
9. Schizoporella simplex, p. 246; a colony with occia.
10. ——



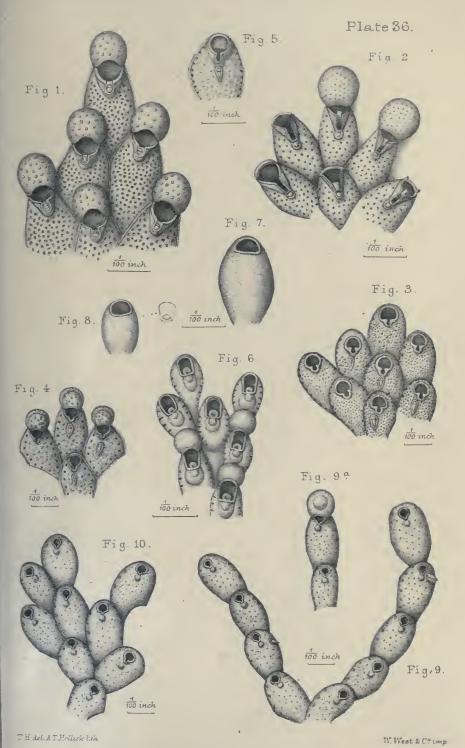




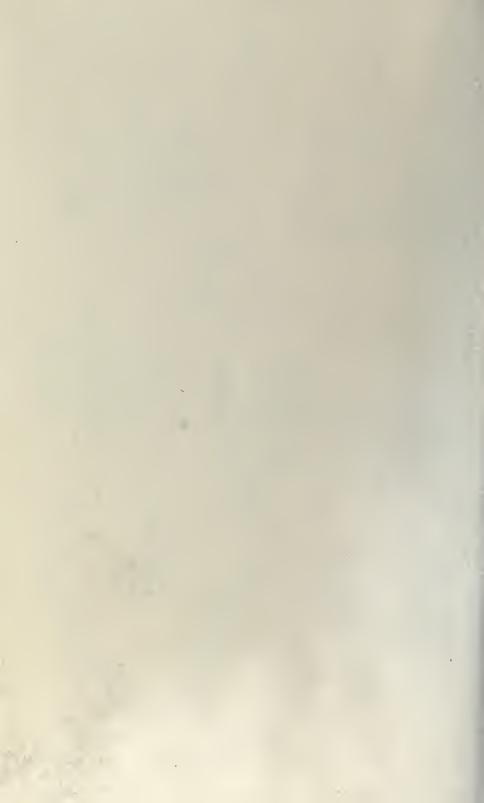
#### PLATE XXXVI.

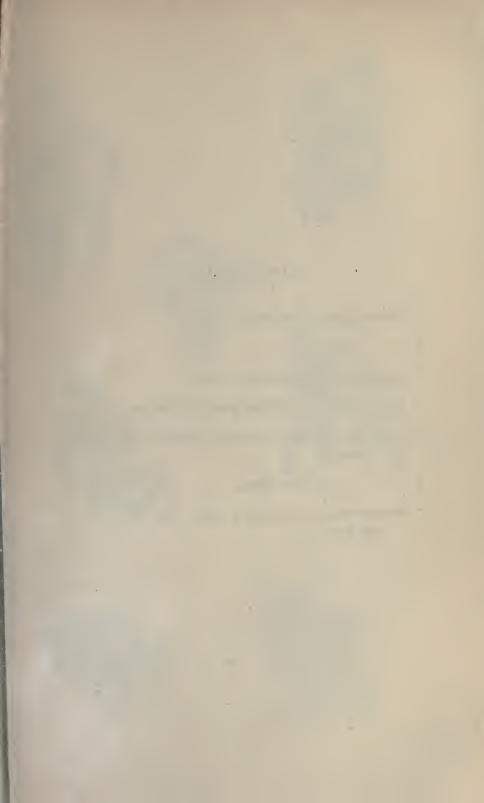
FIG.

- 1. Smittia Landsborovii, p. 341; var. (porifera).
- 2. ——, var. (crystallina).
- 3-5. Smittia marmorea, p. 350.
  - 6. Porella minuta, p. 326; littoral form.
  - 7. Young cell of Porella concinna, showing the primary orifice.
  - 8. Young cell of Porella minuta, with outline of the adult orifice.
- 9, 10. Schizoporella Alderi, p. 243.



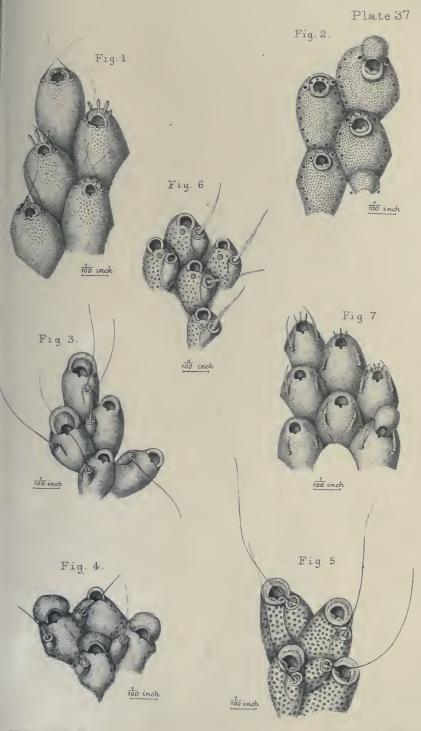
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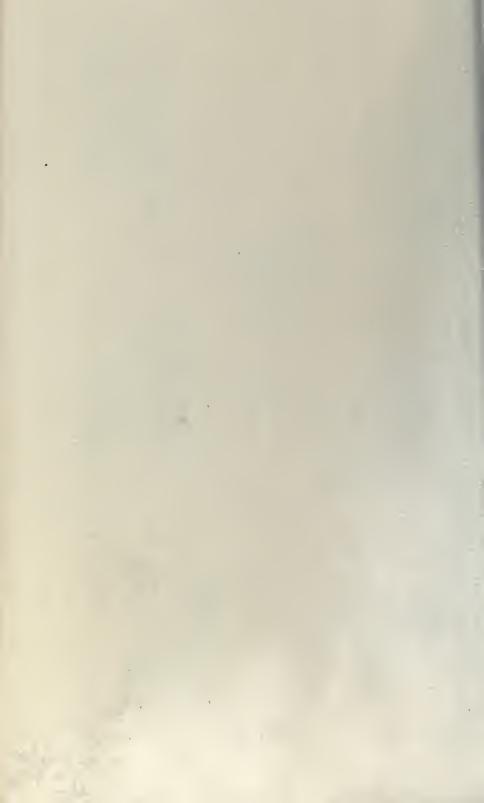


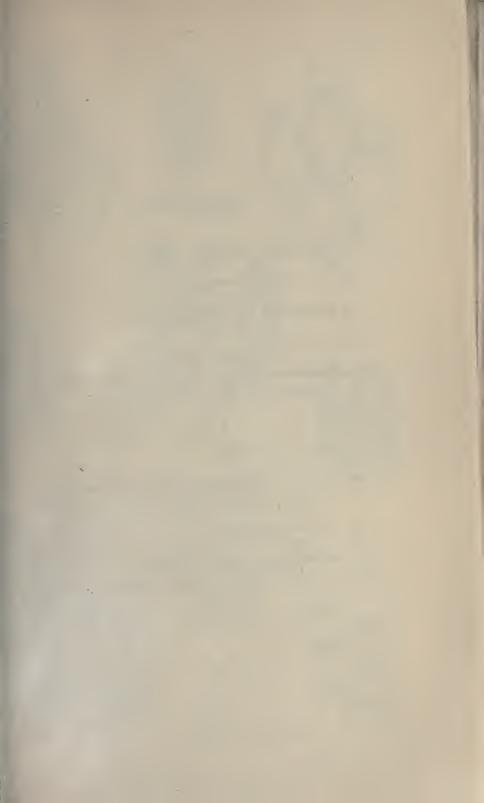
## PLATE XXXVII.

FIG	
1.	Mastigophora Dutertrei, p. 279.
2.	<del></del>
3.	Mastigophora Hyndmanni, p. 281.
4.	————, with oœcia and punctured margin.
5.	, var. with punctured surface and very long vibracula.
6.	, var. ensiformis.
7.	Schizoporella vulgaris, p. 244. See Plate XV. figs. 5, 6.



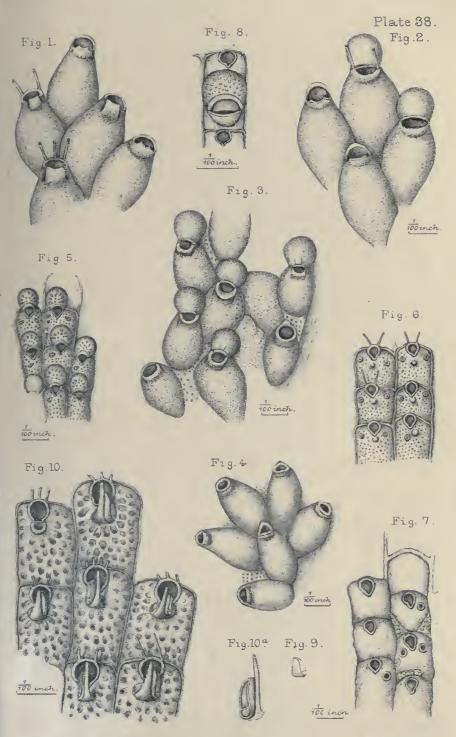
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#### PLATE XXXVIII.

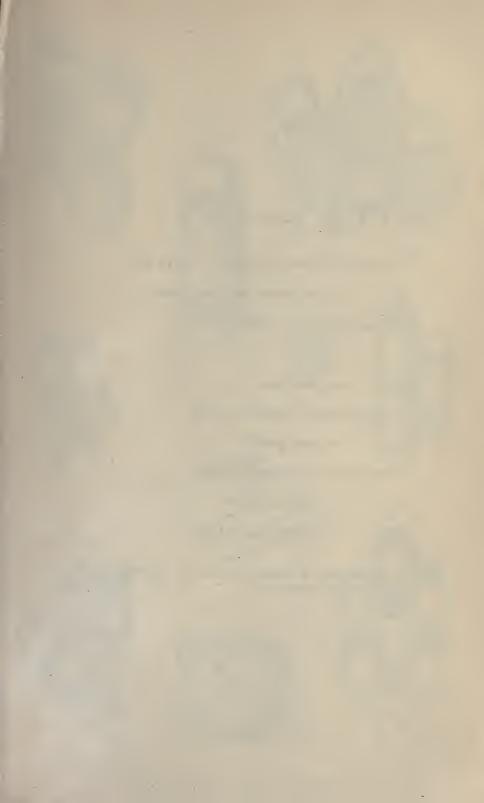
FIG.	Mucronella abyssicola, p. 369.
2.	, with oœcia.
3.	Mucronella microstoma, p. 370.
4.	
5.	Schizoporella linearis, p. 247; with occia. Se Plate XXIV. fig. 1.
6.	
7.	, old state.
8.	, single zoœcium, with a rudimentary ovi
9.	——, avicularium.
10.	Schizoporella linearis, var. hastata.
10 a	. —— , —— mucro and avicularium.



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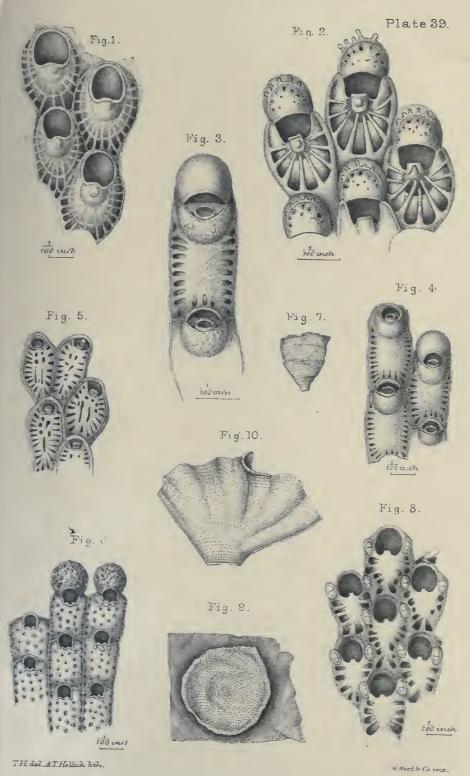




#### PLATE XXXIX.

IG.	
1.	Umbonula* verrucosa, p. 317; littoral form.
2.	——, with occia, from deeper water.
3.	Porella struma, p. 329.
4.	,
5.	———, older state.
6.	Schizoporella sanguinea, p. 252.
7.	————, erect growth.
8.	Mucronella pavonella, p. 376.
9.	———, incrusting form.
0.	, erect foliaceous form.

<sup>\*</sup> The name stands as *Umbonella* in the text; but this form has already been employed as a generic term.



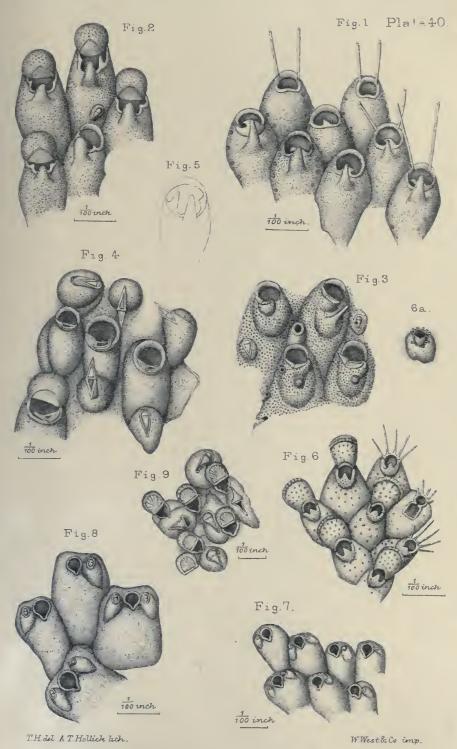
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## PLATE XL.

FIG	
1.	RHYNCHOPORA BISPINOSA, p. 385; showing marginal
	cells and the uncinate process.
	·
2.	
3.	——, with the oral avicularium.
4	with animaliform willow
4.	———, with aviculiferous mamillæ.
5.	, outline of zoœcium, showing the lateral
•	processes.
	processes.
6.	Schizoporella cristata, p. 254.
	, primary cell.
Ou.	. ——, primary cen.
7.	Schizoporella biaperta, p. 255.
	,,,
8.	, more highly magnified.
9.	, showing occia and aviculiferous mamillæ.

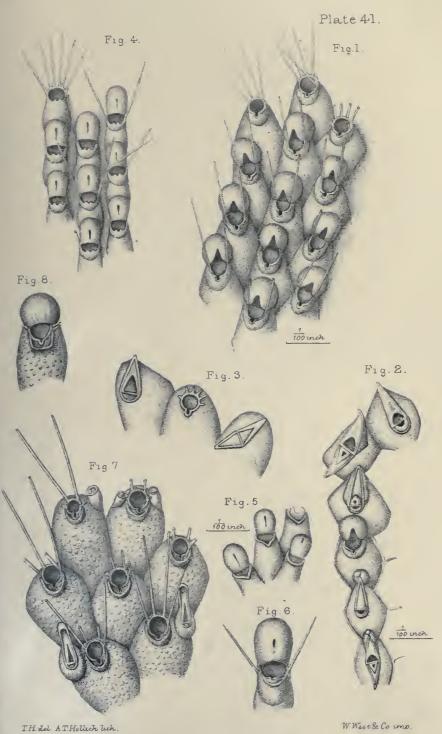






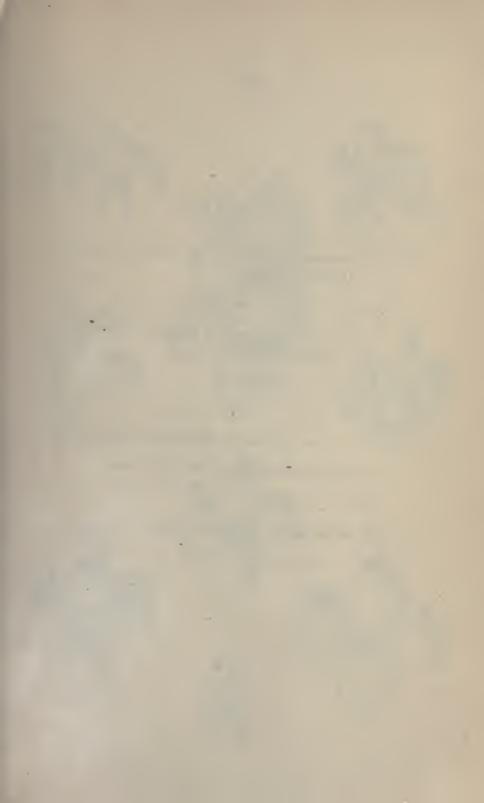
## PLATE XLI.

FIG.	
1.	Schizotheca fissa, p. 284.
2.	—————, chain of avicularian cells, with an ordinary zoocium interposed.
3.	——, marginal cell and avicularia.
4.	Schizotheca divisa, p. 285.
5.	———, with the peristome much clevated.
6.	, a single cell, highly magnified.
7.	Schizoporella armata, p. 258.
8.	, cell with occium.



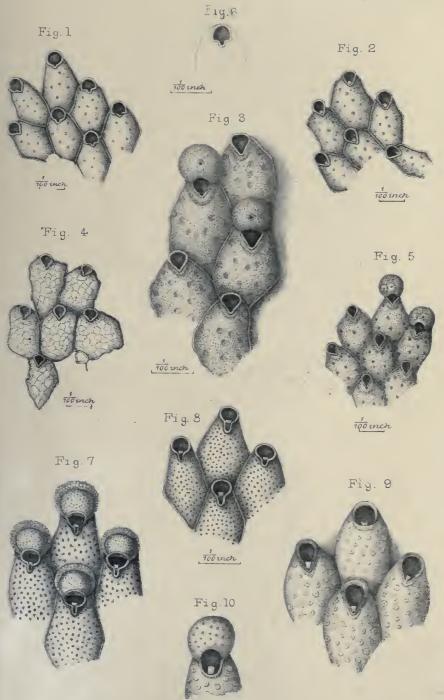
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#### PLATE XLIL

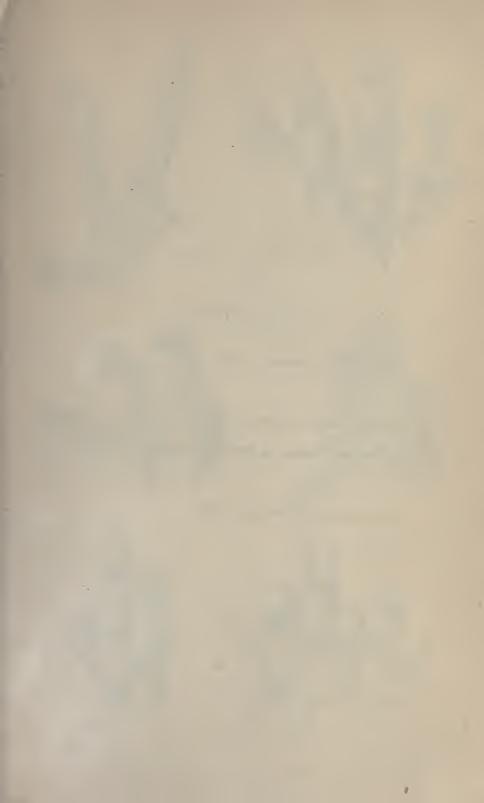
	TIMIL All.
FIG.	
1.	Schizoporella sinuosa, p. 266; with the peristome slightly developed.
2.	————, var. a (ARMATA).
3.	, with numerous large foramina, and occia showing the central pore.
4.	————, tessellated var.
5.	<del></del> 9
6.	——, a young cell showing the primary orifice.
7.	Smittia cheilostoma, p. 349; with occia.
8.	<del></del> ,
9.	Smittia Bella, p. 352. After Busk.
10.	————, with oœcium. Ditto.



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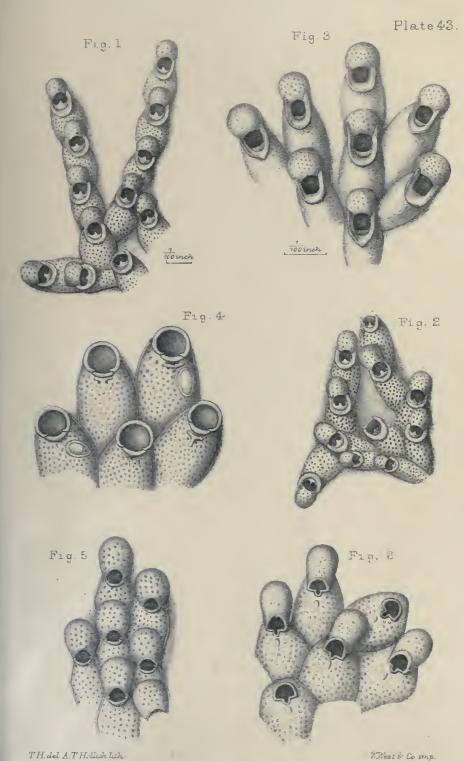
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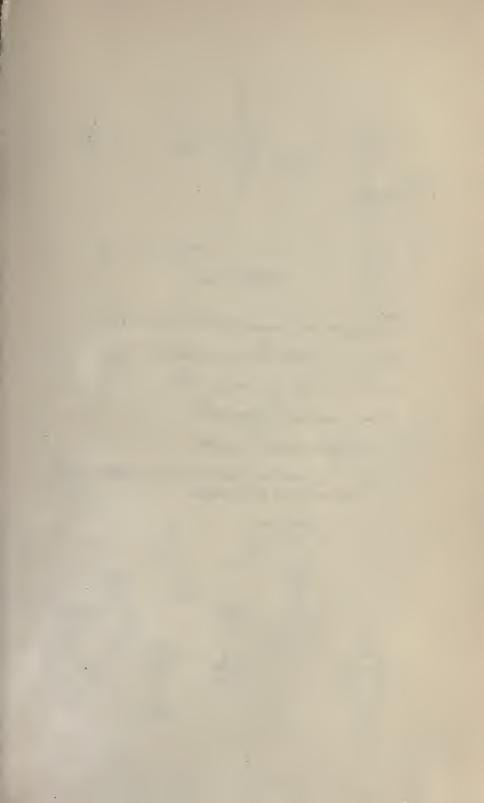
## PLATE XLIII.

ig. 1.	Phylactella labrosa, p. 357.
2.	
3.	Phylactella collaris, p. 358.
4.	LEPRALIA PERTUSA, p. 305; with avicularia.
5.	
6.	Schizoporella Cecilii, p. 269.



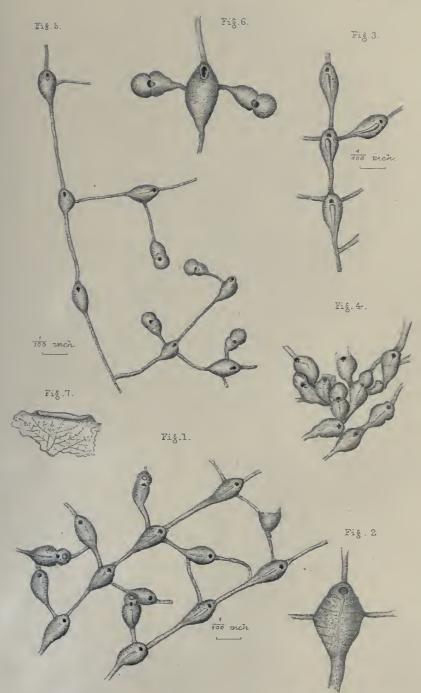
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## PLATE XLIV.

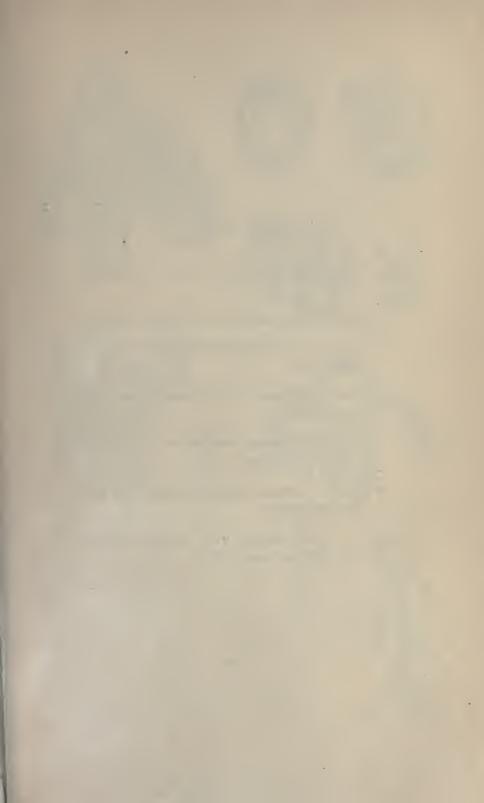
1G.	Нірротном divaricata, p. 288. See Plate I. fig. 2.
2.	, single cell, to show the form of orifice.
3.	—, var. $\beta$ (carinata).
4.	—, var. a (conferta).
5.	Hippothoa flagellum, p. 293.
6.	, zoœcium, showing form of orifice, with ovicelligerous cells attached.
7.	, nat. size.



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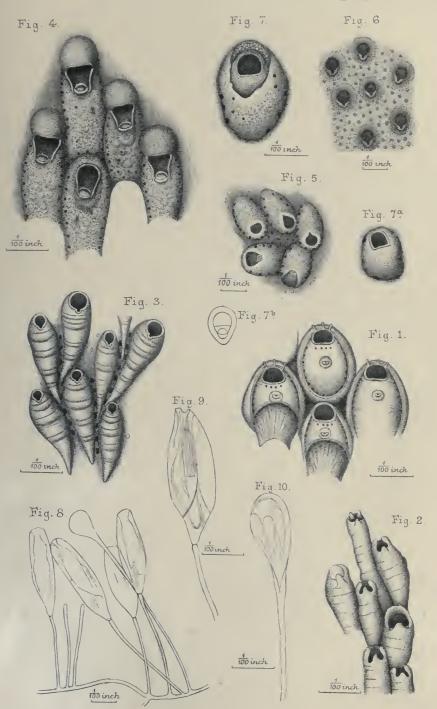


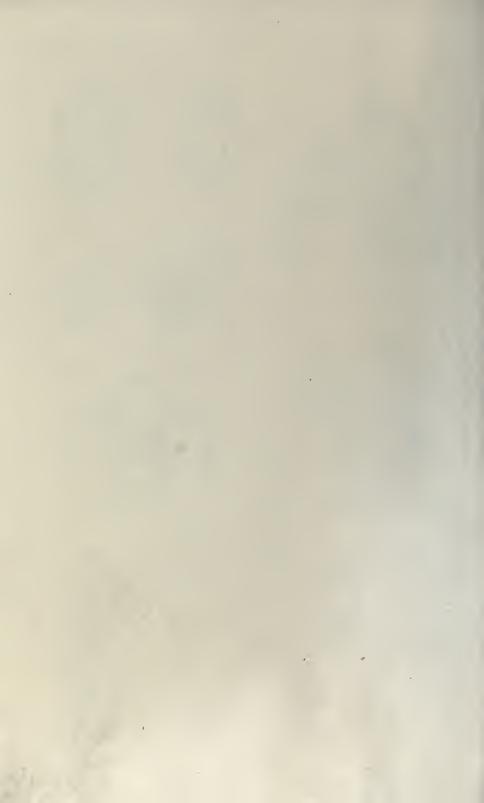


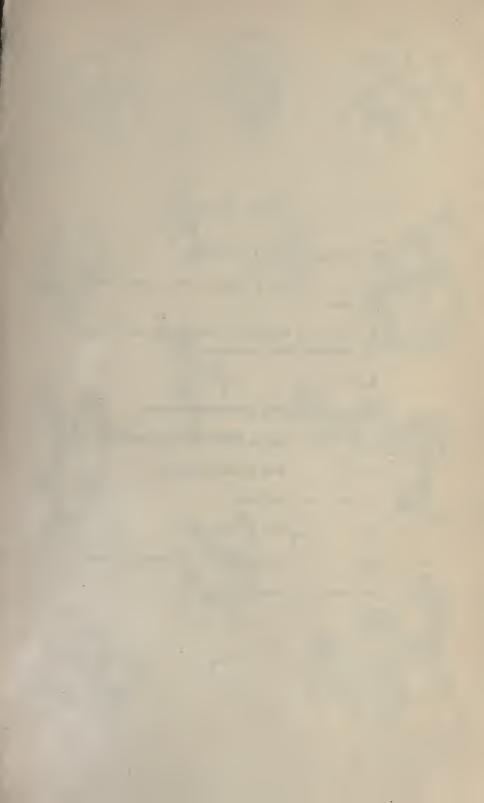
#### PLATE XLV.

FIG.

- 1. Microporella Malusii, var. thyreophora, p. 212.
- 2. Schizoporella hyalina, var. cornuta, p. 273.
- 3. ——, var. from Santa Cruz, with elongated cell, p. 274.
- 4. Porella compressa, p. 330; zoœcia. Sec woodcut, p. 322.
- 5. —————, detached group of cells on the surface of the zoarium.
- 6. , zoœcia deeply immersed and with sinuated orifice.
- 7, 7 a. —, showing the primary orifice: 7 b, outline of adult orifice.



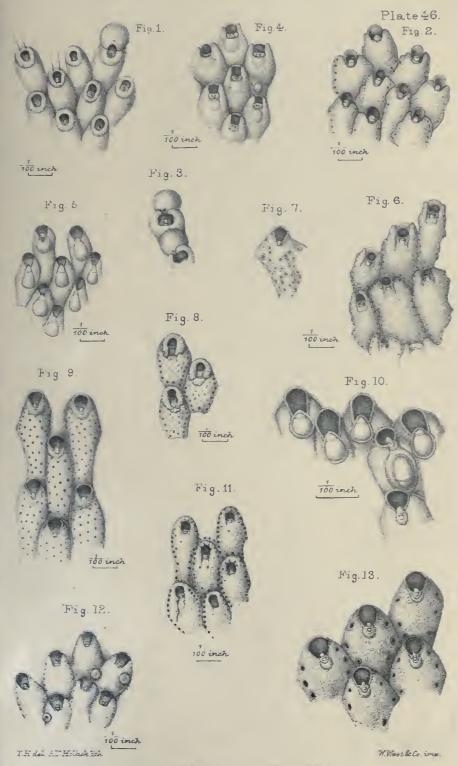




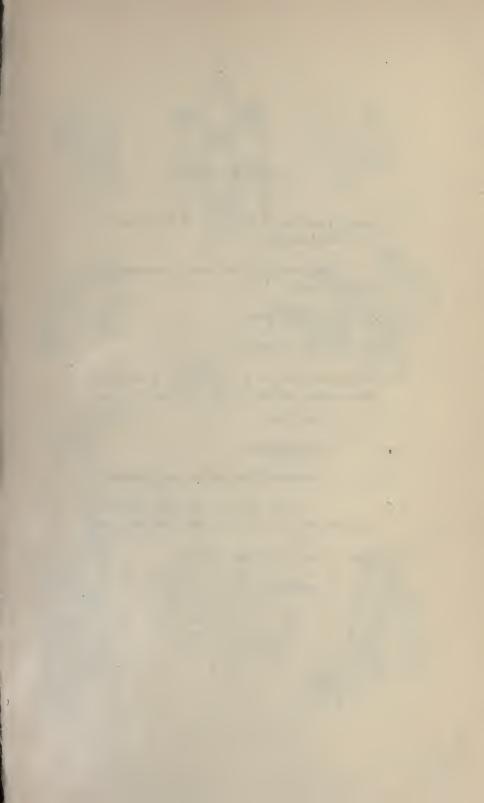
#### PLATE XLVI.

	PLAIE ALVI.
FIG.	D
1.	Porella concinna, p. 323.
2.	——, var. a (Belli), from a British speci-
	men.
3.	————, with occia, showing the central pore
	and the rib-like processes.
4.	<del></del> .
5.	, with spatulate avicularia.
6.	——, var. a, from a Canadian specimen.
7.	——, with a porous surface.
8.	———, old state.
9.	——, var. β (gracilis).
10.	, with spatulate and normal avicularia.
-13.	, vars.

11-

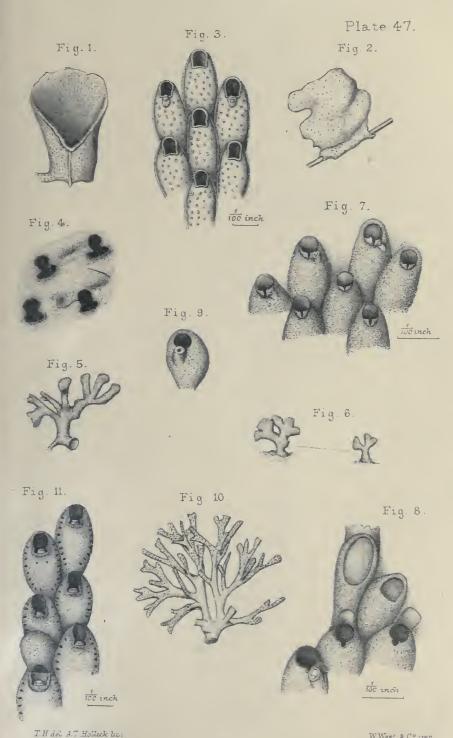






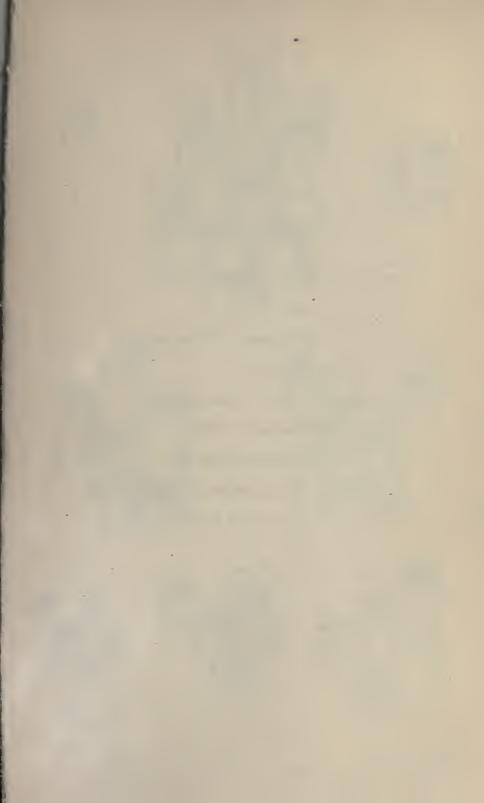
# PLATE XLVII.

TG.	
1.	LEPRALIA FOLIACEA, p. 300; one of the chambers of the foliated zoarium.
2.	——————————————————————————————————————
3.	, normal zoœcia.
4.	——, var. $\beta$ (bidentata).
5.	Escharoides rosacea, p. 336; from a remarkably fine specimen of Mr. Norman's, about nat. sizc.
6.	————, nat. size.
7.	, adult zoœcia.
8.	, cluster of cells from the margin of a colony.
9.	, a young zoœcium, showing the avicula- rium before it is inclosed by the secondary orifice.
10.	Porella lævis, p. 334, nat. sizc.
11.	, zoœcia.



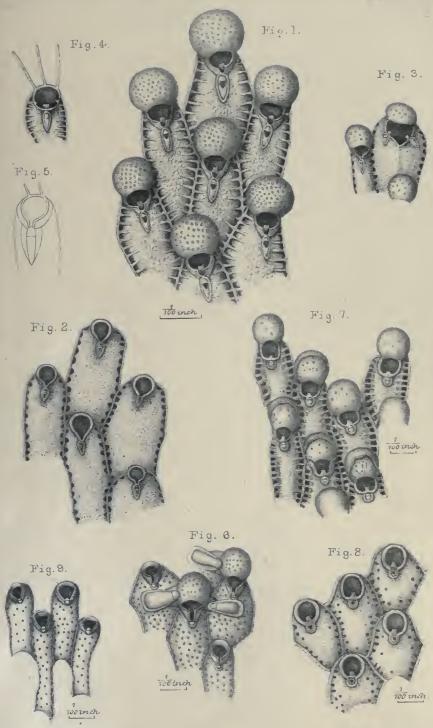
W. West & Comm.





## PLATE XLVIII.

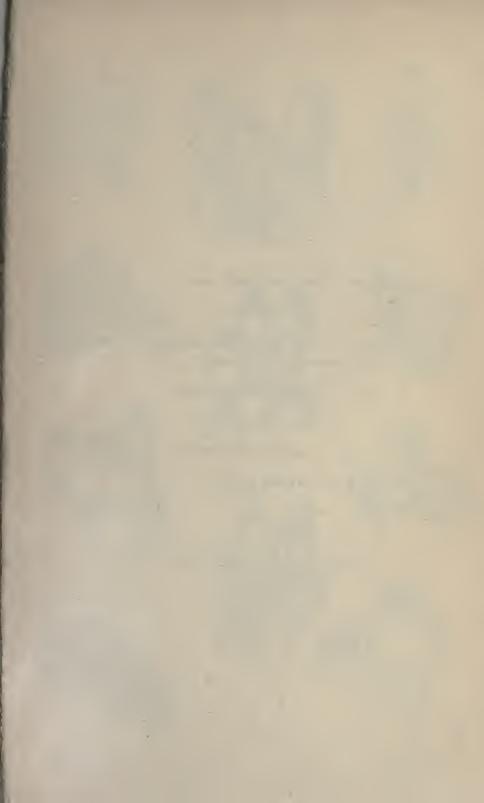
]	1.	Smittia reticulata, p. 346; with occia.
	2.	, var.
	3.	, monstrosity; union of two cells.
	4.	, young cell.
	5.	——, outline of a single adult cell.
	6.	Smittia Landsborovii, p. 341.
	7.	—, old and highly calcified.
	8.	, with the peristome slightly developed
	9.	, with clongate and narrow cells.



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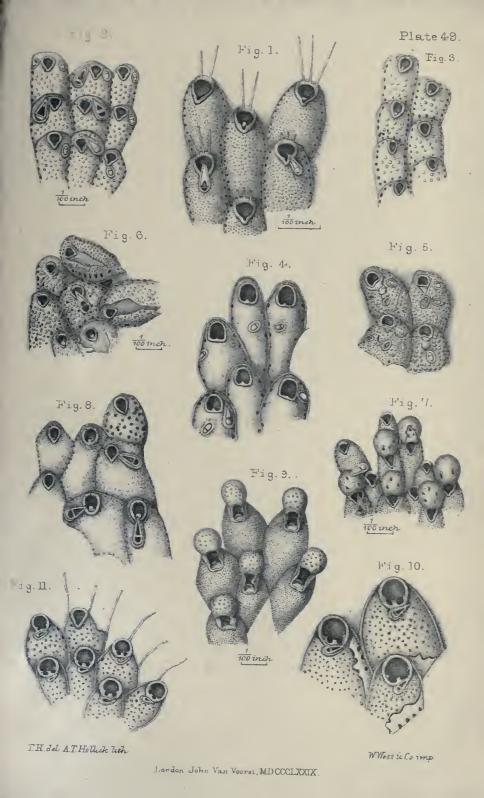
### PLATE XLIX.

FIG. 1-3. Smittia trispinosa, p. 353; vars.
4. ——, var. α (Jeffreysi).
5. ———, var. without raised peristome and with very numerous oval avicularia.
6. ——, old and highly calcified.
7. ——, with oœcia.
8. ——, smooth, marginal cells.

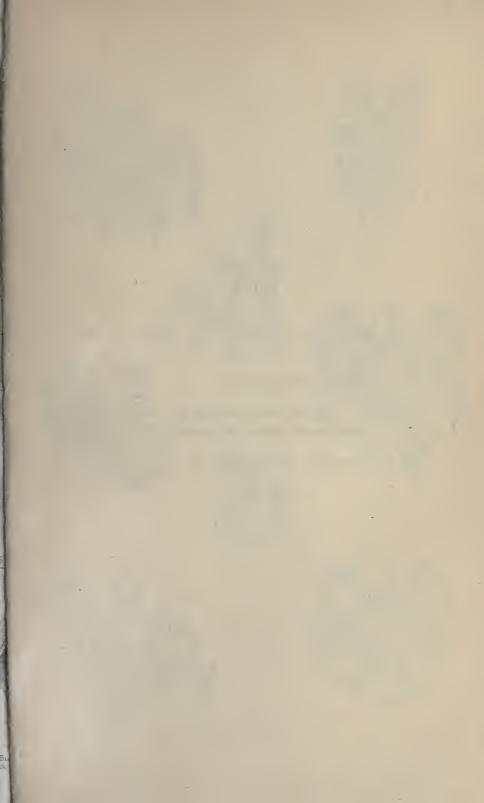
9. Ричастецьа ехіміа, р. 359\*.

10, 11. SMITTIA AFFINIS, p. 348.

<sup>\*</sup> In the text this figure is wrongly numbered 11.



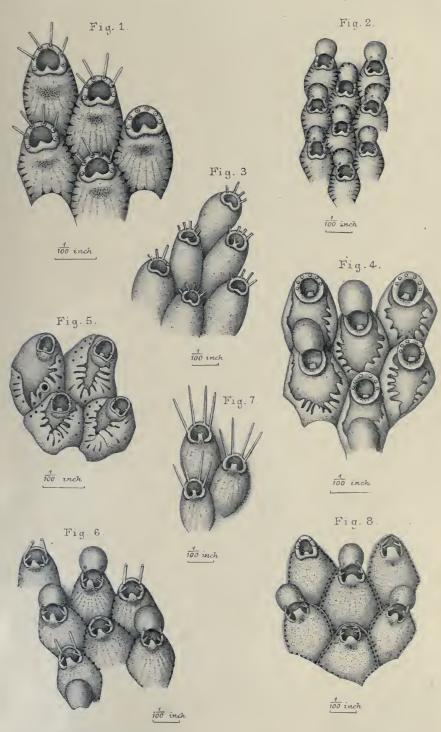




## PLATE L.

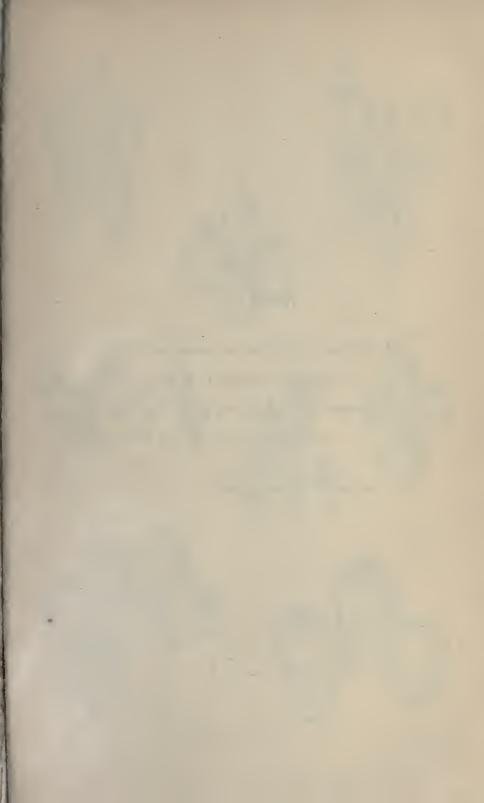
FIG.

- 1, 2. Mucronella Peachii, p. 360. See Plate LI. figs. 1, 2.
  - 3. ———, smooth form.
- 4,5. ——, old states, showing the growth of the calcareous crust over the surface.
- 6, 8. Mucronella ventricosa, p. 363.
  - 7. , young cells.



T.H. del AT Hollick lith

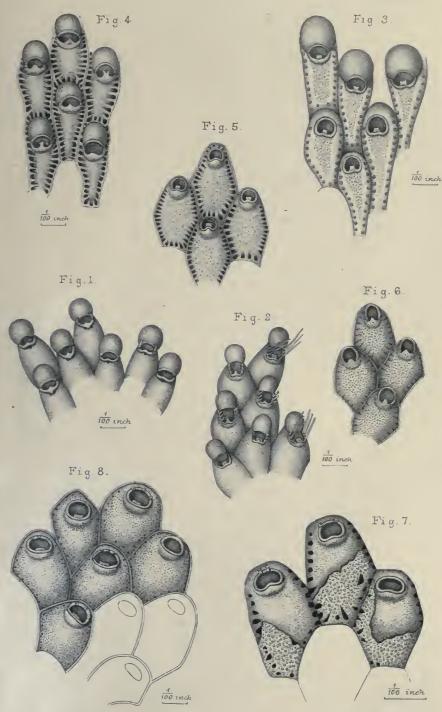




#### PLATE LI.

FIG.

- 1. Mucronella Peachii, var. α (labiosa), p. 361.
- 2. ——, var. β (остодентата), p. 361.
- 3-6. Mucronella variolosa, p. 366; vars.
  - 7. ——, showing the growth of the superficial crust.
  - 8. Mucronella laqueata, p. 368.

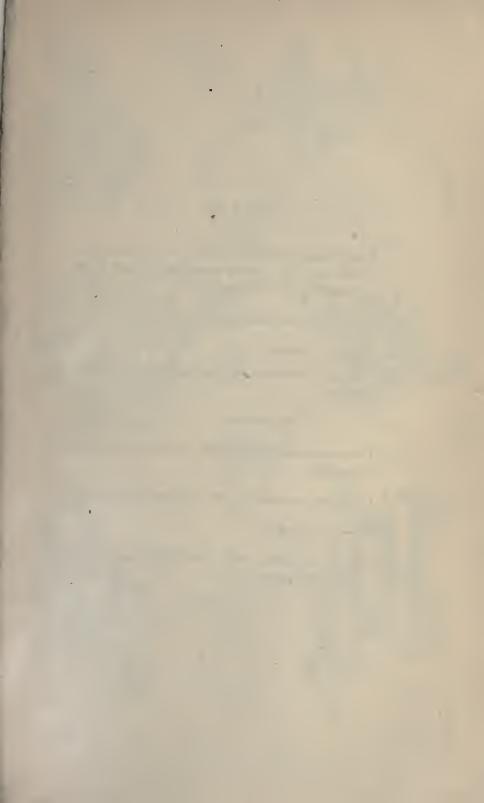


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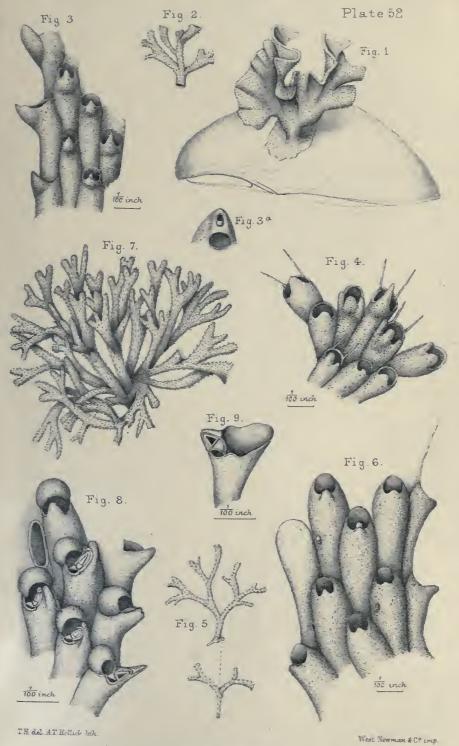
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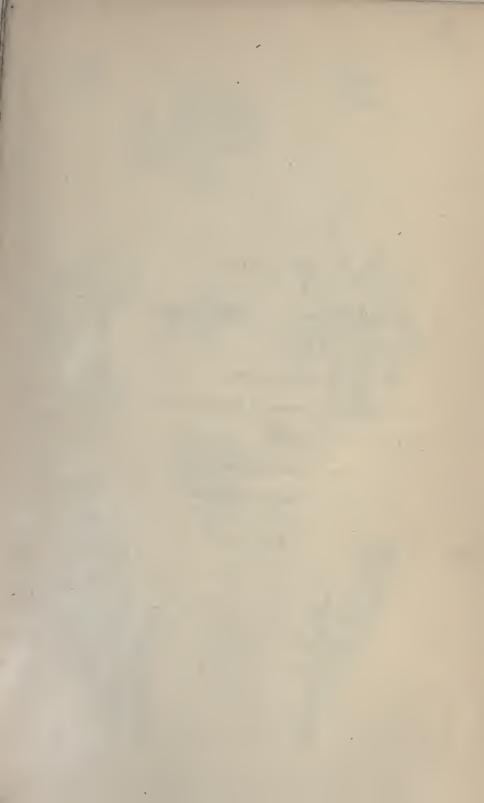
# PLATE LII.

FIG.	•
1.	Palmicellaria Skenei, p. 379; var. $\beta$ (foliacea), about nat. size; from a beautiful specimen in the possession of Dr. M'Intosh.
2.	————, usual form, nat. size.
3.	, zoœcia.
3 a.	, zoœcium, showing position of the avicularium.
4.	——, form bicornis.
5, 6.	PALMICELLARIA LOREA, p. 382; nat. size, and zoœcia magnified.
7.	Cellepora ramulosa, p. 401; slightly above nat. size.
8.	————, zoœcia.
9.	, a single cell, showing the spur at the base of the rostrum.



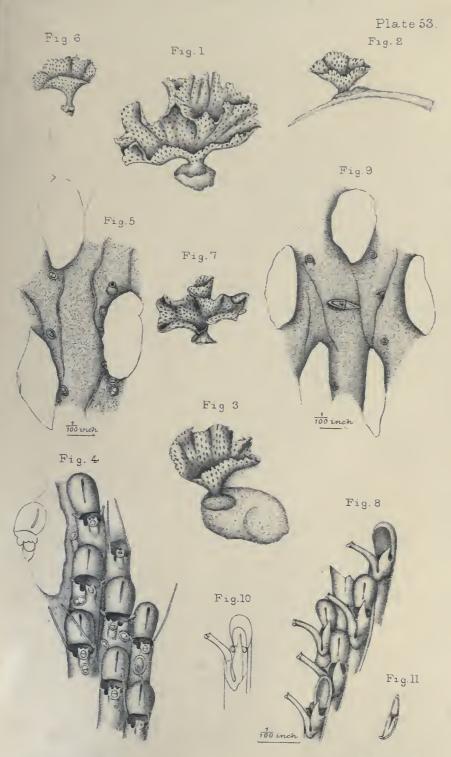
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# PLATE LIII.

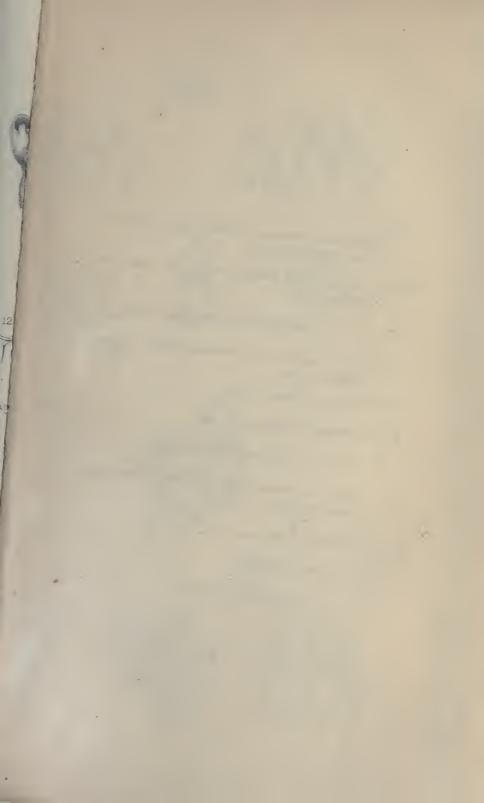
FIG.
1-3. Retepora Beaniana, p. 391; nat. size
4. ———, zoœcia.
5. ———, dorsal surface.
6, 7. Retepora Couchii, p. 395; nat. size.
8, 10. ———, zoœcia.
9. ———, dorsal surface.
11. — - elongate avicularium



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W. West & Co imp.





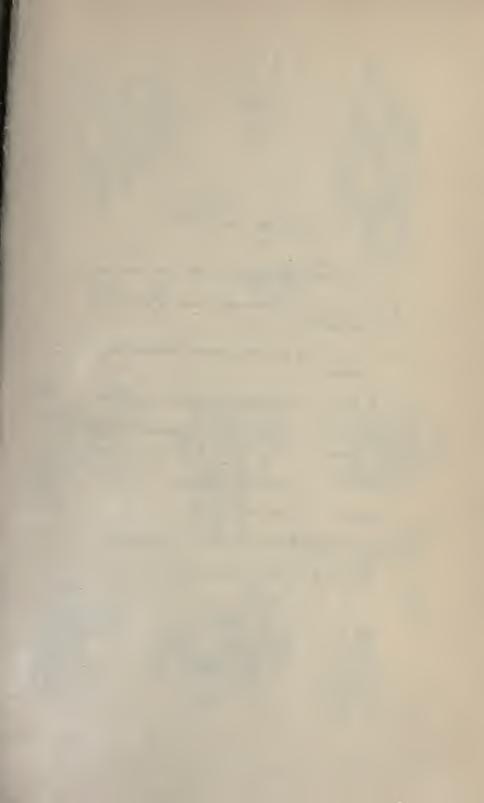
## PLATE LIV.

FIG.	
1.	Cellepora pumicosa, p. 398; zoœcia from the
	margin of the colony.
a, 1b.	—, adult zoœcia, showing the form of the
	rostrum.
2.	, zoœcium with punctured_ovicell.
3.	, nat. size; nodulated form on shell,
	ovoid on stem.
3a.	——, ditto, on stone.
	C 40C
4, 5.	Cellepora avicularis, p. 406.
6.	——————————————————————————————————————
7-9.	CELLEPORA TUBIGERA, p. 409; from Crag speci-
	mens, after Busk.
0.11	Cellepora armata, p. 410.
0, 11.	CELLEPORA ARMATA, p. 410.
12.	, rostrum.
13	—— —, spatulate avicularium.
10.	, spatiated artistial fails.

TH&G.Busk del AT Hollick lith

West Newman & Comp

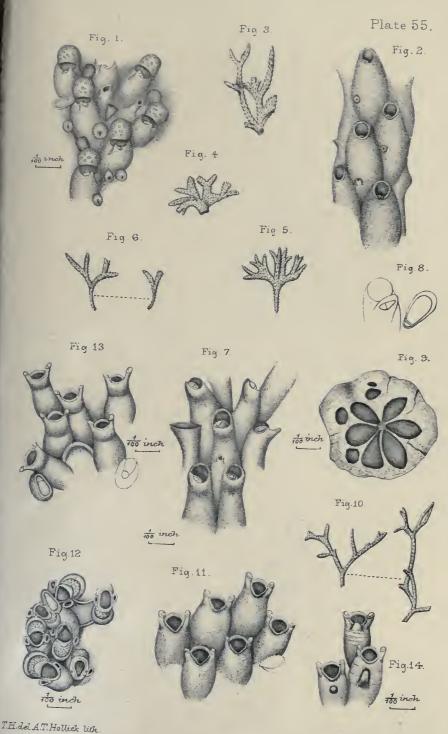




## PLATE LV.

FIG.	
1.	Cellepora dichotoma, p. 403; adult zoœcia.
2.	———, younger cells from the margin of the colony.
3-6.	, nat. size, showing the varieties of habit.
7.	——, var. attenuata, rather young cells.
8.	————, single cell and spatulate avicularium.
9.	, section of the stem.
10.	, nat. size.
12,14.	CELLEPORA COSTAZII, p. 411; normal form.
13.	——, var. a (TUBULOSA).

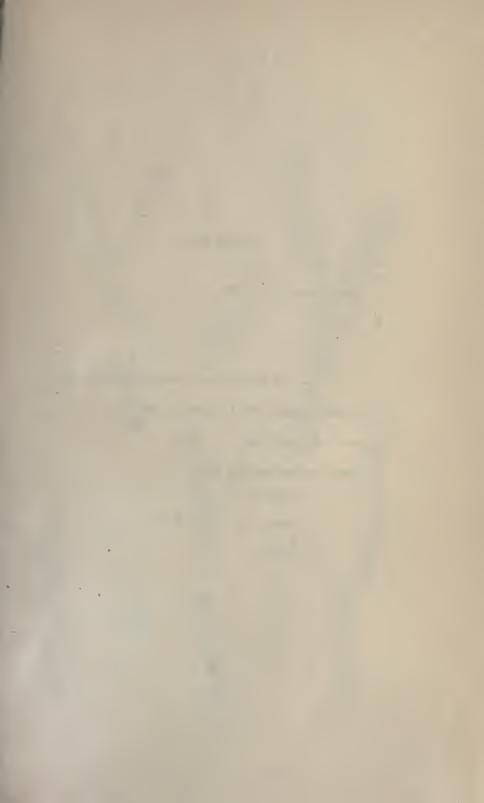
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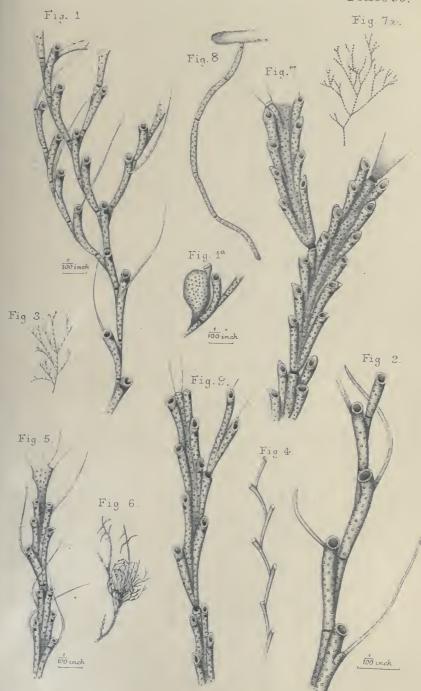
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# PLATE LVI.

F	IG.	
	1.	Crisia cornuta, p. 419.
	2.	
	3.	<del></del> .
	4.	, var. geniculata. After Milne-Edwards.
	5.	Crisia eburnea, var. aculeata, p. 420.
	6.	, nat. size.
	7.	Crisia denticulata, p. 422.
7	<i>a</i> .	, nat. size.
	8.	, one of the radical fibres.
	9.	, variety.



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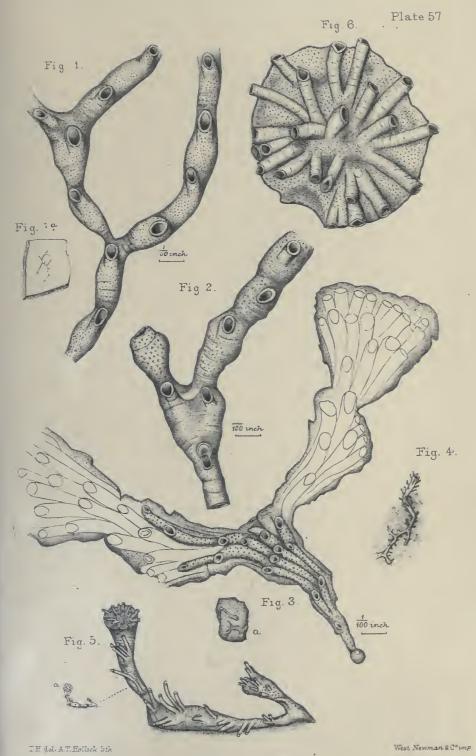
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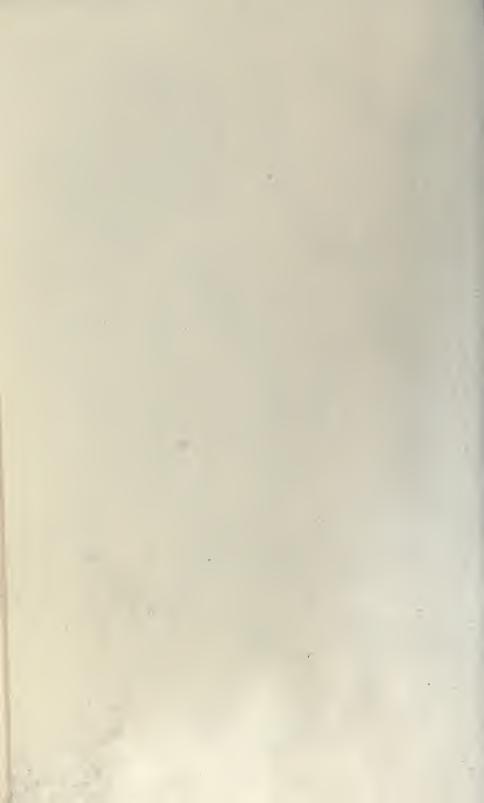




## PLATE LVII.

1, 1 a. Stomatopora granulata, p. 425; enlarged and nat. size.
 2. ————, older state.
 3. Stomatopora dilatans, p. 429.
 3 a. ————, nat. size.
 4. Stomatopora deflexa, p. 437.
 5. Stomatopora fungia, p. 438.
 6. ————, the capitulum.

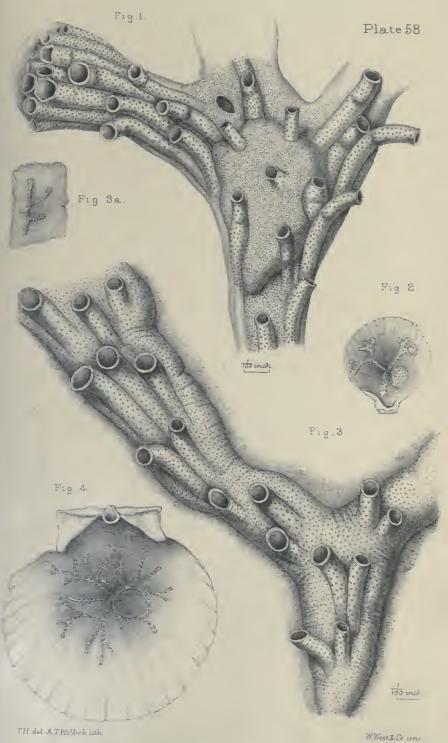






#### PLATE LVIII.

Stomatopora major, p. 427; with occium and triple division of the branch. See Plate LXI.
 ————, nat. size of the above.
 ————.
 a. ————, nat. size.
 ————, nat. size, from a finely ramified specimen.



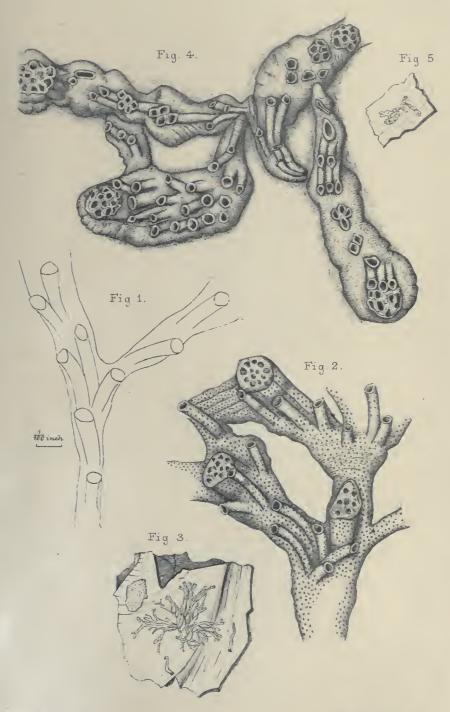
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#### PLATE LIX.

Stomatopora Johnstoni, p. 430. See Plate LX.
 Stomatopora incrassata, p. 436.
 — —, nat. size.
 Stomatopora fasciculata, p. 441; a colony, enlarged.
 — —, nat. size.



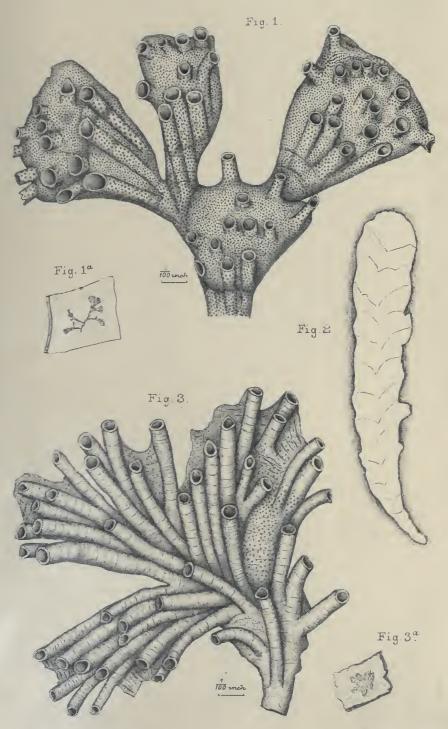




#### PLATE LX.

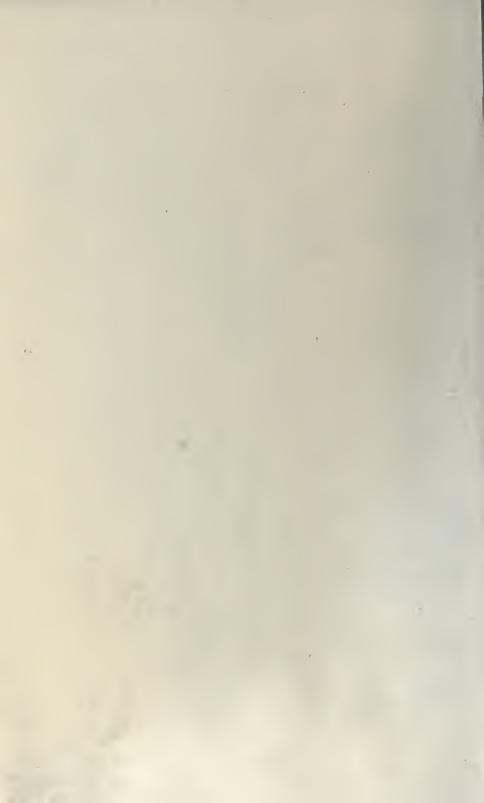
FIG.

- 1. Stomatopora Johnstoni, p. 430; with occia. See Plate LIX.
- 1 a. , nat. size.
  - 2. Idmonea serpens, p. 453; young. See Plate LXI.
  - 3. Tubulipora fimbria, p. 448.
- 3 a. , nat. size.



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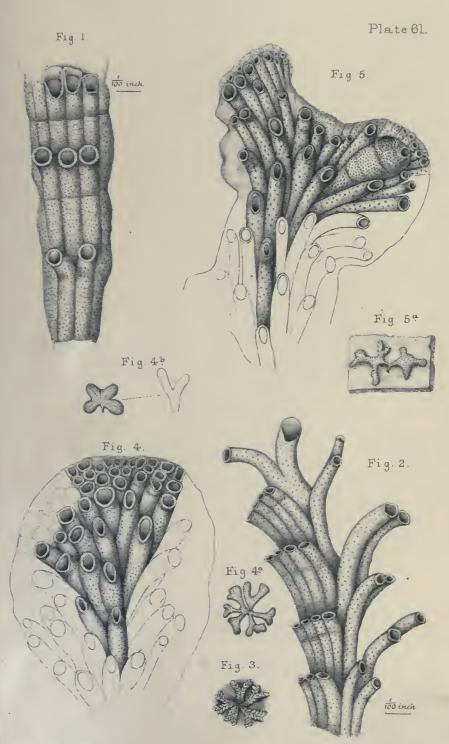
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# PLATE LXI.

F	
	STOMATOPORA MAJOR, p. 427. See Plate LVIII.
2	Idmonea serpens, p. 453; zoœcia.
;	——, var. RADIATA, nat. size.
4	Tubulipora lobulata, p. 444; a single lobe.
4 a, 4 d	
	, from another specimen.
5 (	, nat. size.



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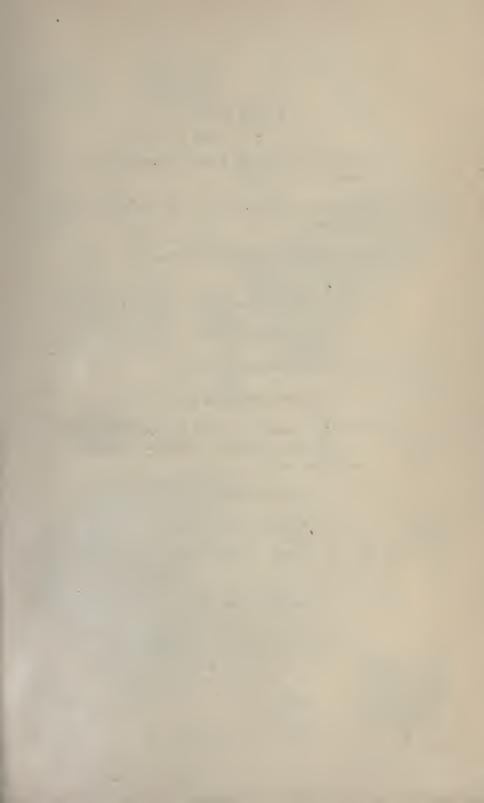


### PLATE LXII.

Stomatopora expansa, p. 432; a lobe, enlarged.
 a. ———, nat. size.

- 2. Hornera violacea, p. 469; dorsal surface. See Plate LXVII.
- 3. —, oœcium.





### PLATE LXIII.

FIG. 1, 2. STOMATOPORA COMPACTA, p. 435; enlarged and nat. size. 3, 4. STOMATOPORA DIASTOPORIDES, p. 434; enlarged and nat. size. 5. Domopora Truncata, p. 485; colony with a single bud. 6. ——, eolony viewed from above. 7. — , a composite colony. 8. ———, the elevated centre \*. 9. — , portion of the margin of the disk. 10. Domopora stellata, p. 481; a finely developed colony, with numerous capitula, considerably above nat. size. 11. — —, the branched form. 12. ---, a young bilobate colony. 13. — , var. (?=Corymbopora fungiformis, Smitt).

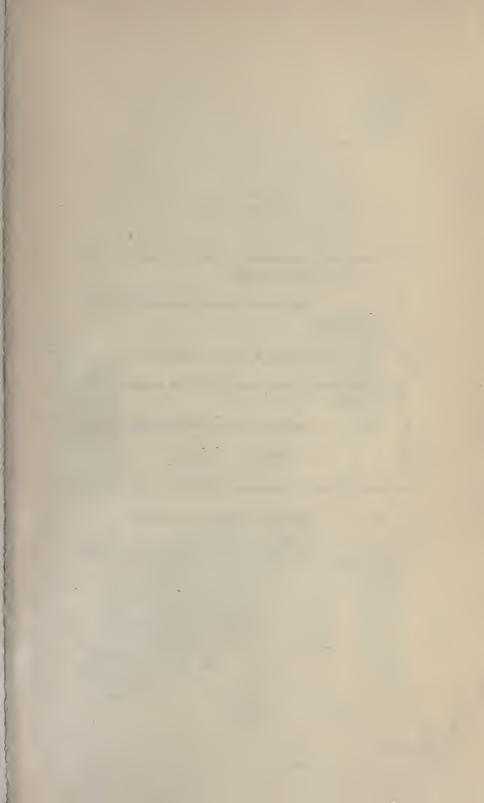
14. — , celliferous lamellæ.

<sup>\*</sup> In this figure the radiating furrows are too strongly marked.

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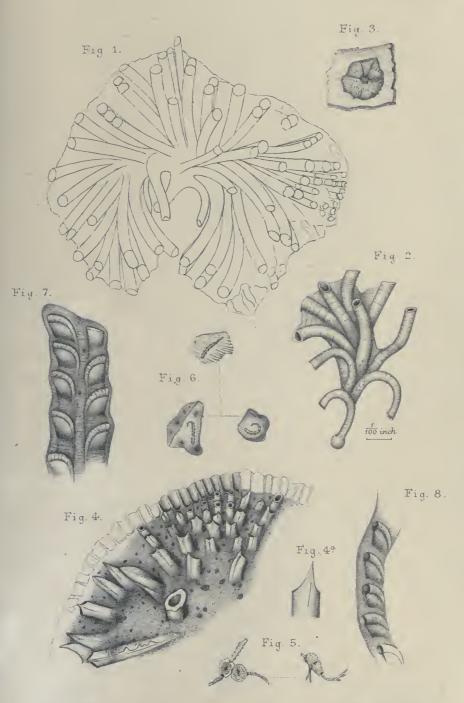
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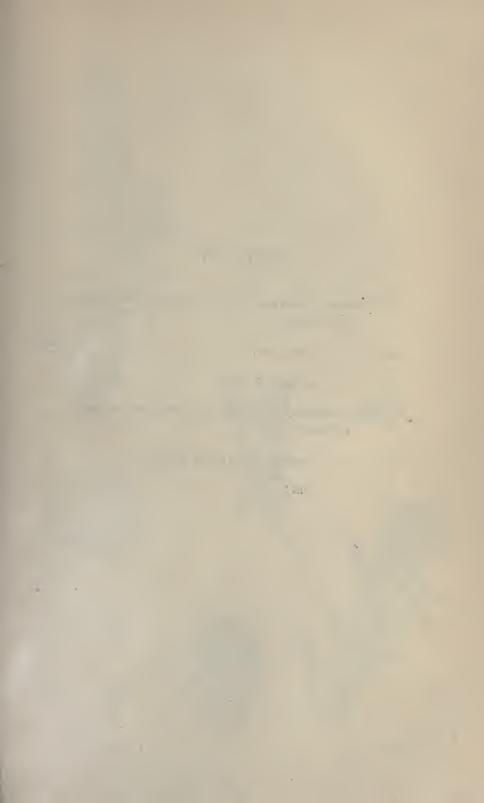
## PLATE LXIV.

FIG. 1.	TUBULIPORA FLABELLARIS, p. 446; a colony in the
	carlier, flabellate stage.
2.	, a very young colony, showing the primitive disk.
3.	, nat. size, a fully developed colony.
4.	LICHENOPORA VERRUCARIA, p. 478; a segment of the disk.
4 a.	, single cell, showing the acuminate margin.
5.	————, nat. size.
6.	Stomatopora incurvata, p. 433; nat. size.
	———, portion of the zoarium, enlarged.
8.	————, side view of the zoœcia, showing the orifices.



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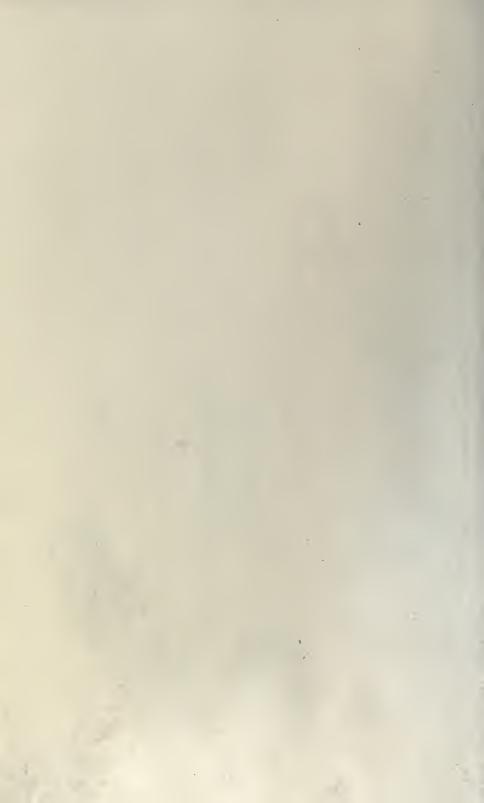




# PLATE LXV.

ғіс. 1, 2.	IDMONEA ATLANTICA, p. 451; portion of a branch, front surface.
3.	, nat. size.
4.	———, dorsal surface.
ŏ, 6.	Entalophora clavata, p. 456; terminal portion of a branch.
7.	——, cellular apex of the branch.
8.	———, nat. sizc.

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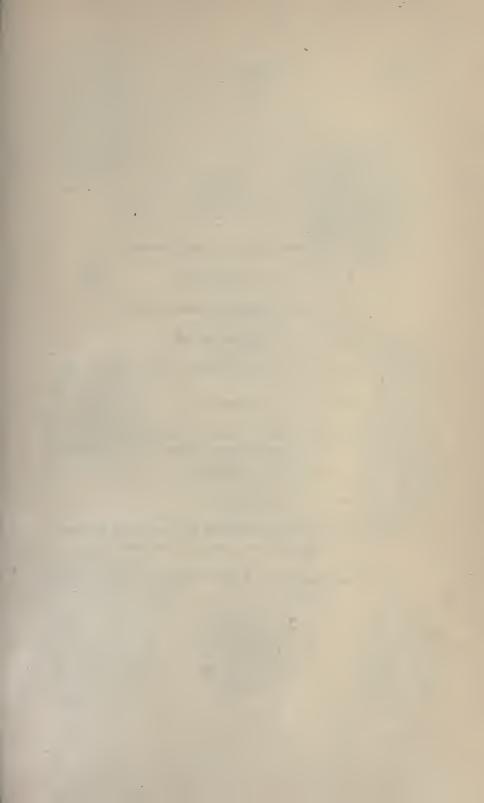
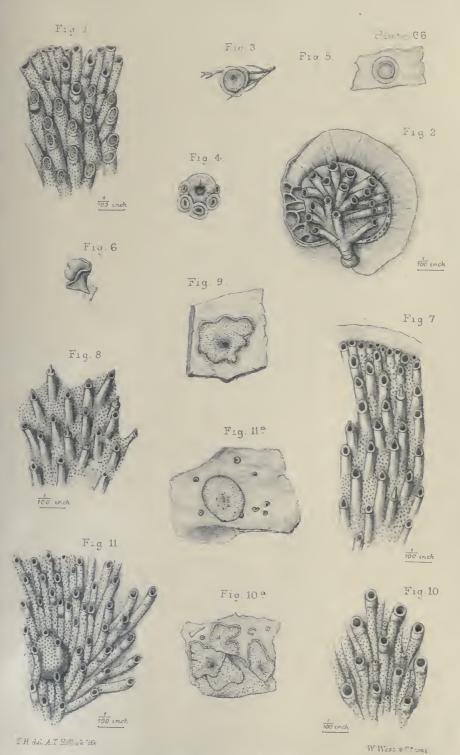
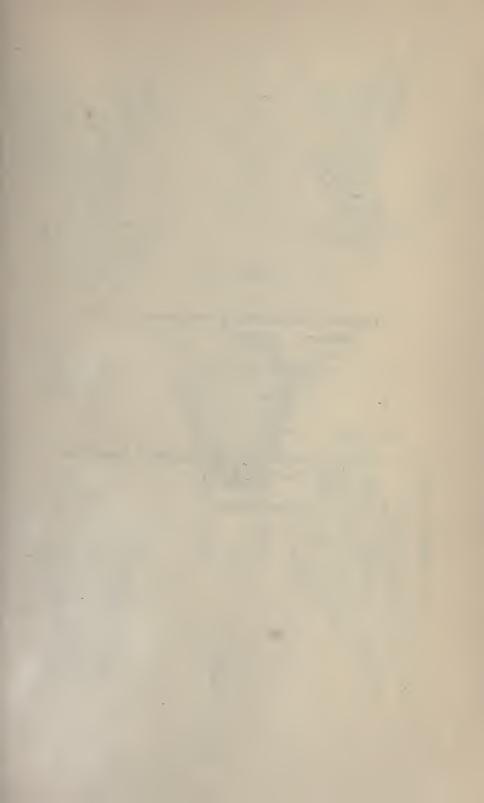


	PLATE LXVI.
FIG.	Diastopora patina, p. 458; zoœcia.
2.	, a young colony.
3.	, ordinary caliculate form.
4.	, proliferous disk.
5.	, disk with the lamina wholly adnate.
6.	—, stipitate form.
7, 8.	DIASTOPORA SARNIENSIS, p. 463; portions of the crust, showing several of the operculate cells, with tubular orifice.
9.	——————————————————————————————————————
10, 10 a.	Diastopora obelia, p. 462; portion of the crust, enlarged, and colony, of the natural size.
11, 11 a.	DIASTOPORA SUBORBICULARIS, p. 464; ditto, ditto.



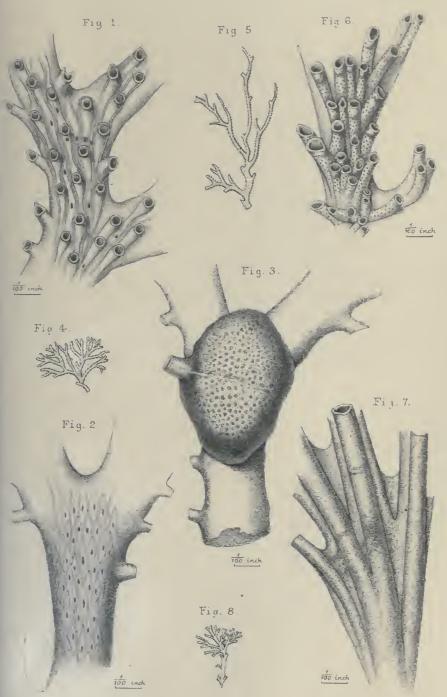
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# PLATE LXVII.

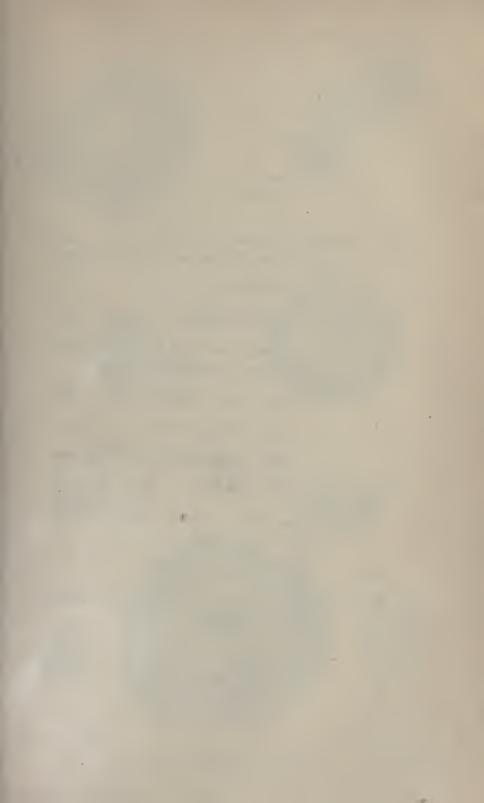
F	ıg.	
	1.	Hornera lichenoides, p. 468; portion of branch, enlarged.
	2.	, dorsal surface.
	3.	, oœcium.
ŀ,	5.	, nat. size.
	6.	HORNERA VIOLACEA, p. 469; portion of branch, en-
		larged. See Plate LXII.
	7.	——————————————————————————————————————
	8.	——, nat. sizc.



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W. West & Co imp.

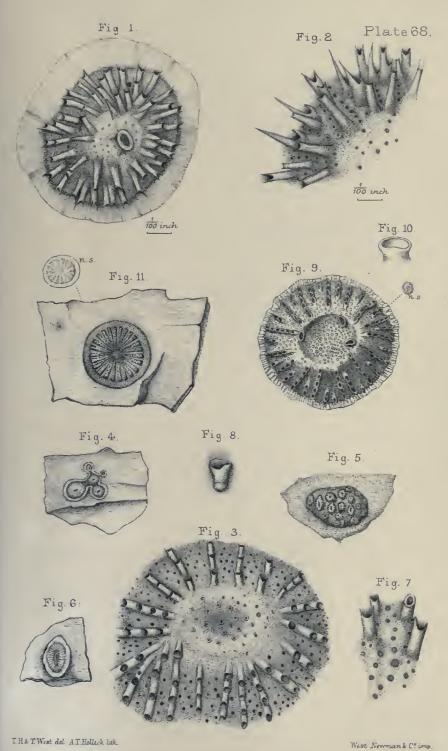




## PLATE LXVIII.

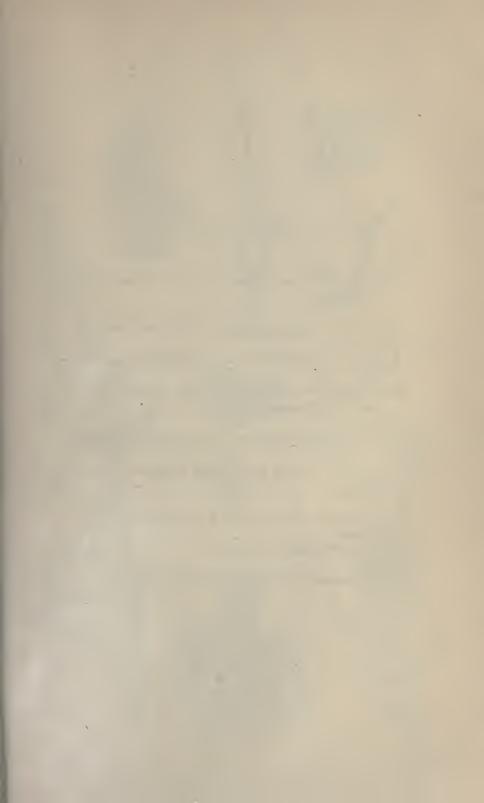
FIG.
1. Lichenopora hispida, p. 473; a young and simple
colony, with one of the occial orifices in the centre.
2. —— , portion of disk.
c. — , portion of disk.
3. — , one of the mamillæ of the composite form.
4. ———, a composite colony in an early stage,
showing the mode of gemmation: nat. size.
5. ——, adult composite colony, var. β, nat. size.
6. ———, caliculate form, nat. size.
7. ———, portion of disk, showing the stellate pores.
8. ———, origin of colony.
9. LICHENOPORA RADIATA, p. 476; enlarged and nat.
size. After Tuffen West.
5120. 11101 Lanon 11000.
10. ——, one of the occial orifices.
480 1 (-1 1
11. Lichenopora regularis, p. 479; enlarged (about

three times) and nat. size.



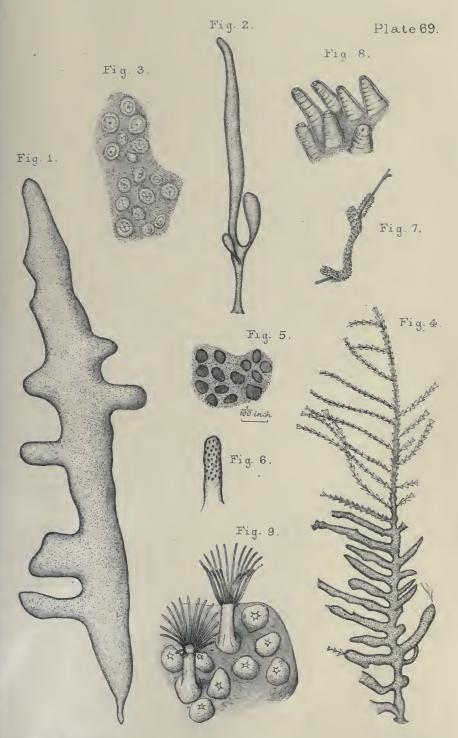
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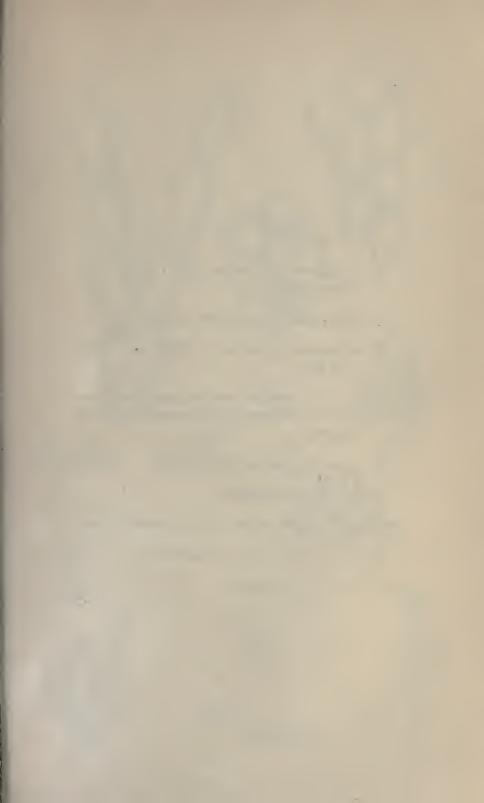
# PLATE LXIX.

1. Alcyonidium gelatinosum, p. 491; lobate form nat. size.
2. ——, young and simple eolony, nat. size.
3. ——, portion of surface, showing zocceial orifices
4. Alcyonidium parasiticum, p. 502; specimen invest ing a Sertularian.
5. ——, portion of erust as it appears when dried.
6. ————, a lobe, showing the arrangement of the eells.
7. Alcyonidium mamillatum, p. 495; nat. sizc.
8. —— , zoœcia, enlarged.
9. Alcyonidium polyoum, p. 501. After Hassall.



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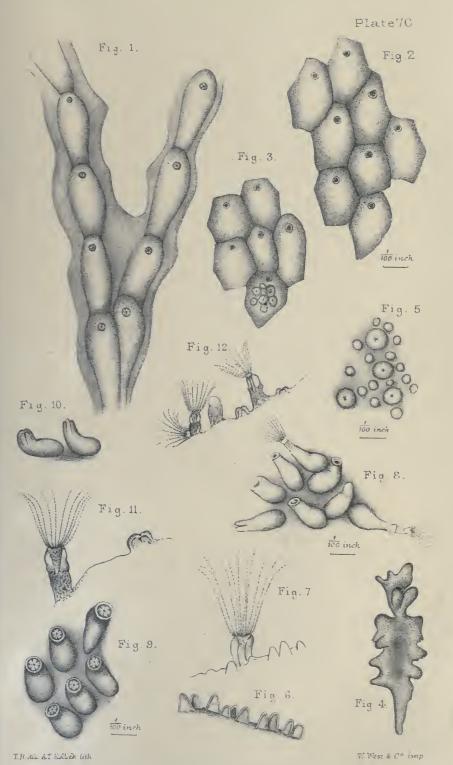




### PLATE LXX.

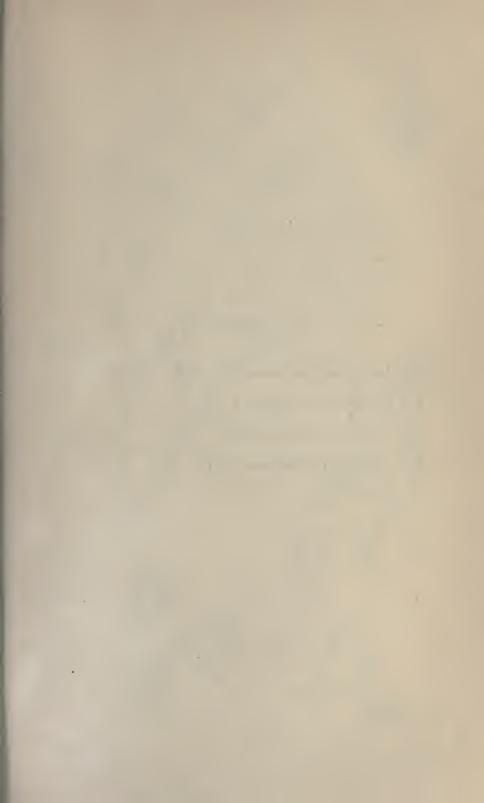
1. Algrenidium disjunctum, p. 497; portion of the crust, enlarged.

- 2, 3. Alcyonidium mytili, p. 498; zoœcia.
  - 4. Alcyonidium Hirsutum, p. 493; young colony, nat. size.
  - 5. —— , portion of surface, viewed from above, showing the zoocial orifices surrounded by the papille.
  - 6. , papillæ, viewed in profile.
  - 7. —, the polypide.
- 8, 9. Alcyonidium albidum, p. 500; portions of crust.
  - 10. ——, two zoœeia detached.
- 11, 12. , polypides.



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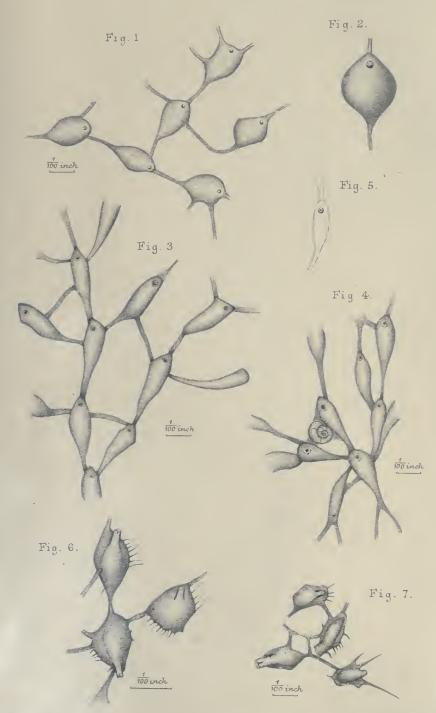




### PLATE LXXI.

- 1, 2. Arachnidium hippothooides, p. 509.
- 3, 4. Arachnidium clavatum, p. 510.
  - 5. , a single zoœcium.
- 6, 7. Arachnidium fibrosum, p. 511.

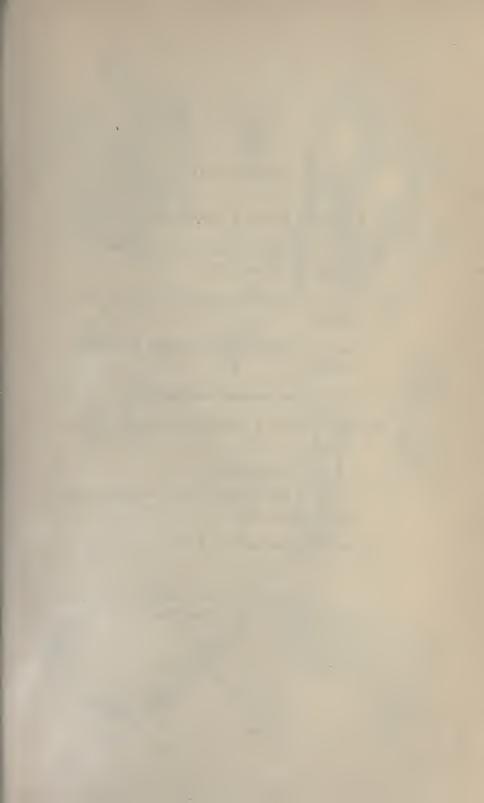




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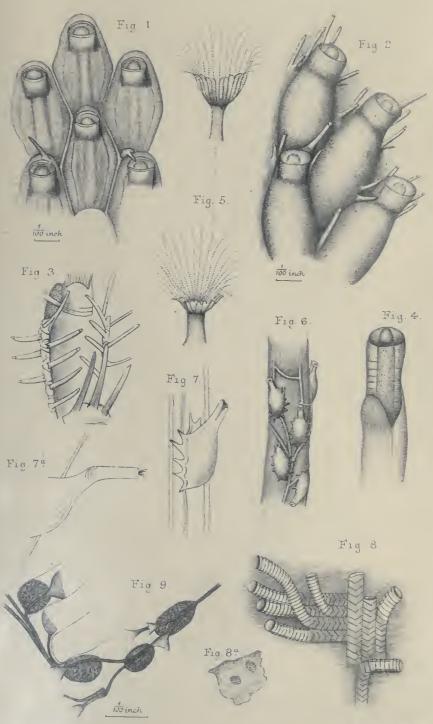
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# PLATE LXXII.

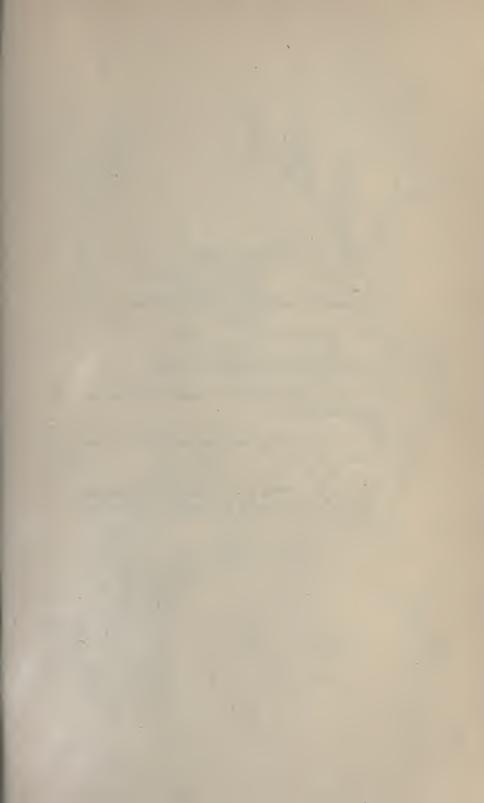
FIG.	
	FLUSTRELLA HISPIDA, p. 506; young zoœcia.
2.	, zoœcia with the spines developed around the orifice only.
3.	———, a zoœcium surrounded by spines. After Smitt.
4.	———, the bilabiate orifice with the polypide issuing.
5.	———, the expanded tentacular bell.
6.	Buskia nitens, p. 532; colony creeping over a stem.
7.	, a single cell.
	, the retractile sheath unrolled, with
	operculum of setæ.
8.	RHABDOPLEURA COMPACTA, p. 581.
8 α.	, nat. size.
9.	, portion of the "axial cord," with statoblasts (?), seen from below.
	,



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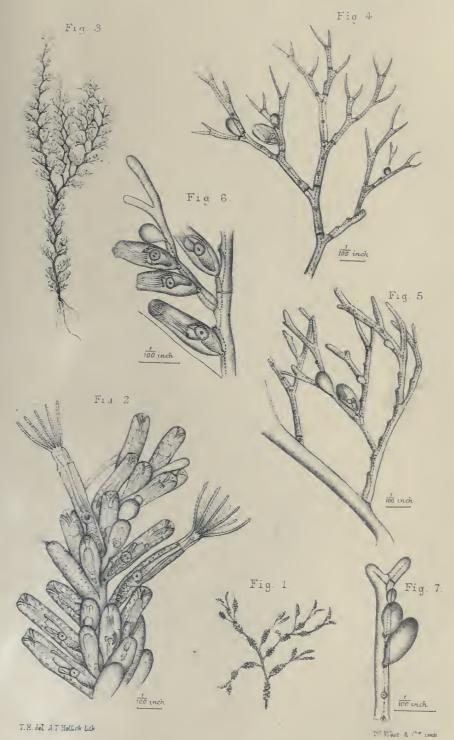




### PLATE LXXIII.

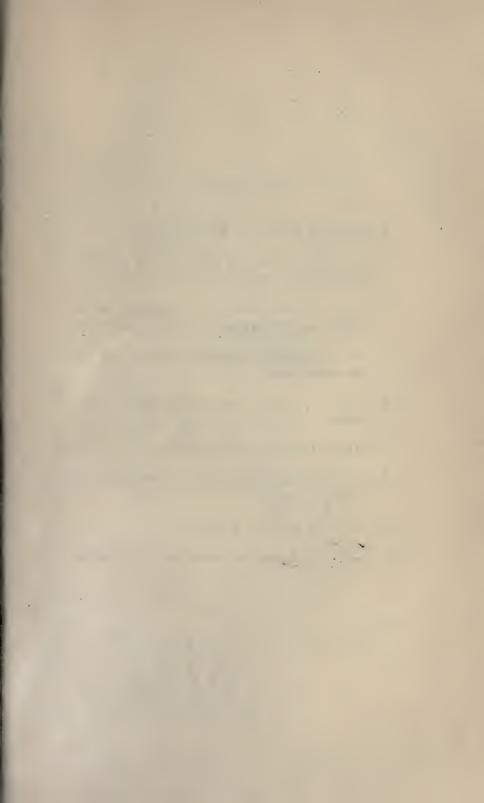
FIG.	
FI(i.	
1. Bowerbankia imbricata, p. 519; ero	ect form.
,	
2. ——, nat. size.	
•	
3. Vesicularia spinosa, p. 513; nat. si	ze.

- 4. ----, a fully developed branch, with the spinous extremities.
- 5, 6. —, growing branches, with blunt extremities.
  - 7. —, a young shoot, showing the endosarc and the mode in which the zoœcia are connected with it.



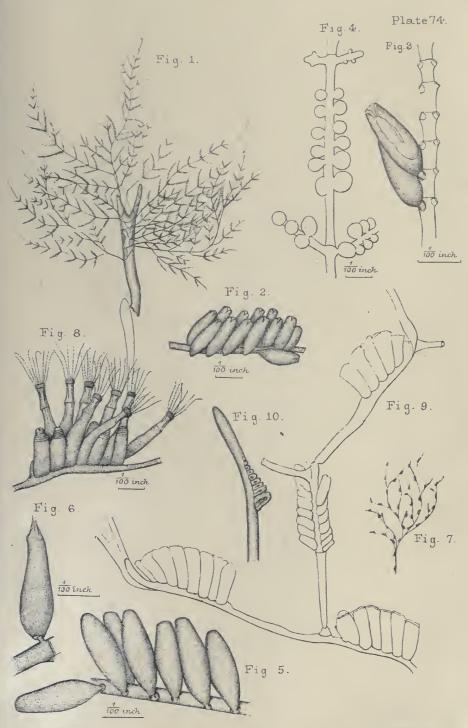
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# PLATE LXXIV.

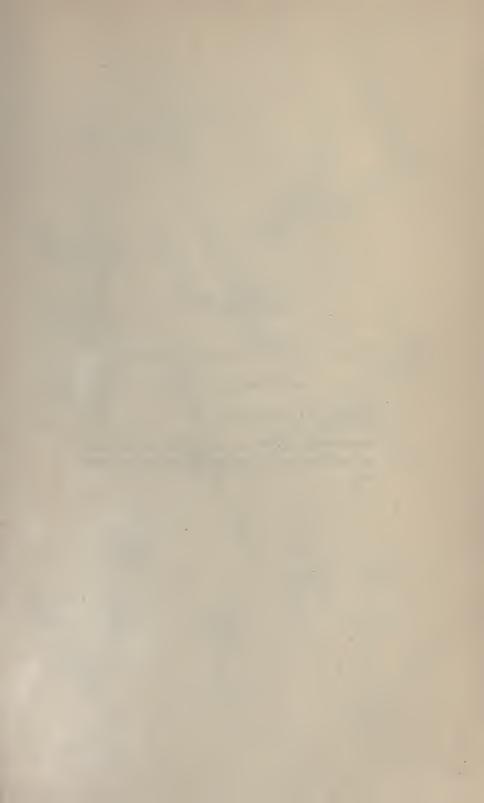
MIMOSPILL CRACKED D. 556 . not size
1. Mimosella gracilis, p. 556; nat. size.
2., —, portion of a pinna, showing the double line of cells; a single zoecium thrown back.
3. — , stem, showing the internodes and the tubular projections to which the cells are jointed.
4. ————, terminal portion of a pinna, with buds in various stages.
5, 6. — , zoœeia, showing the mode of attachment.
7. Amathia lendigera, p. 516; nat. size.
8. — , one of the sets of cells, with the polypides expanded.
9. ——, portion of zoarium.
10. ——, extremity of branch, with cells budding.



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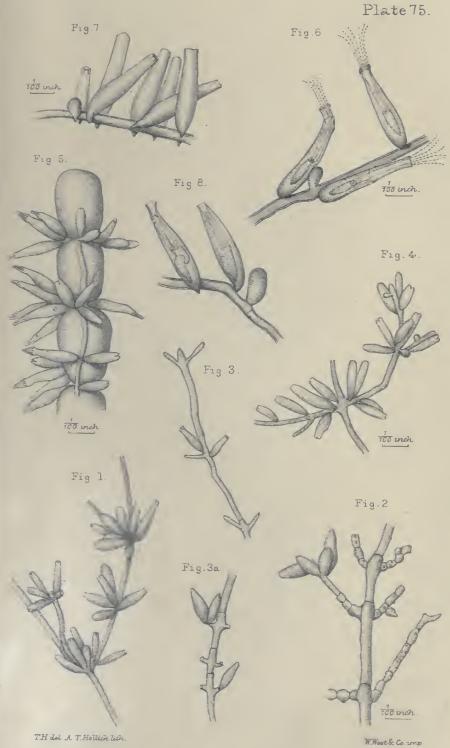




#### PLATE LXXV.

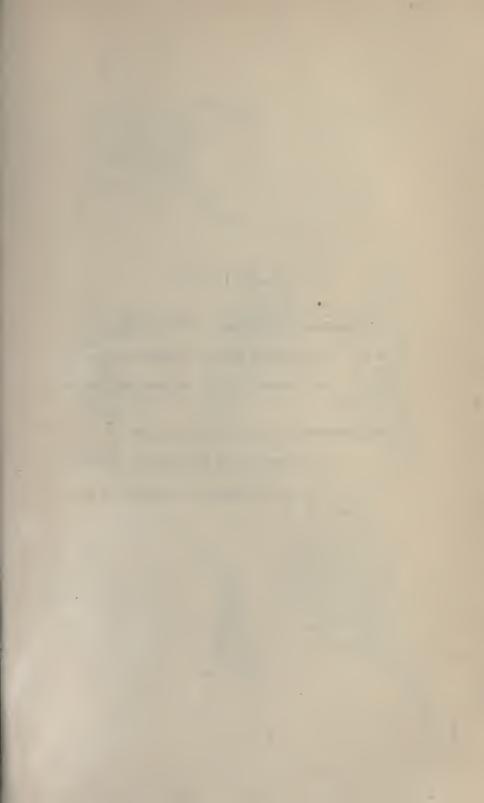
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- 1-4. VALKERIA UVA, erect form (CUSCUTA), p. 551.
  - 5. , repent form, on Corallina.
  - 6. Bowerbankia gracillima, p. 525.
  - 7. Bowerbankia caudata, p. 521; showing the biserial arrangement of the zoœcia and the caudate extremity.
  - 8. \_\_\_\_\_



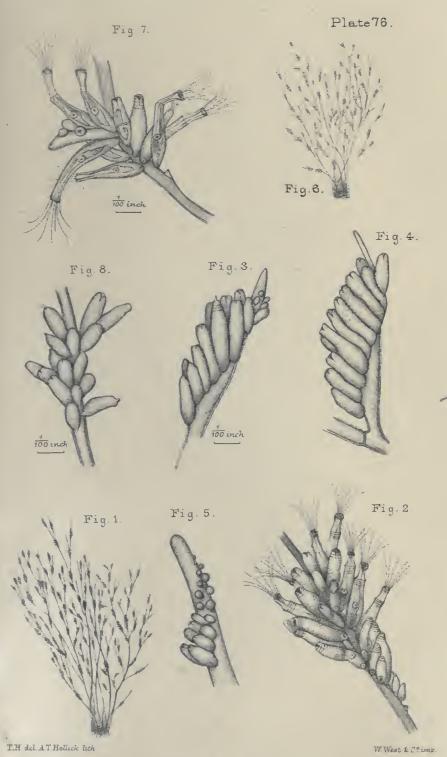
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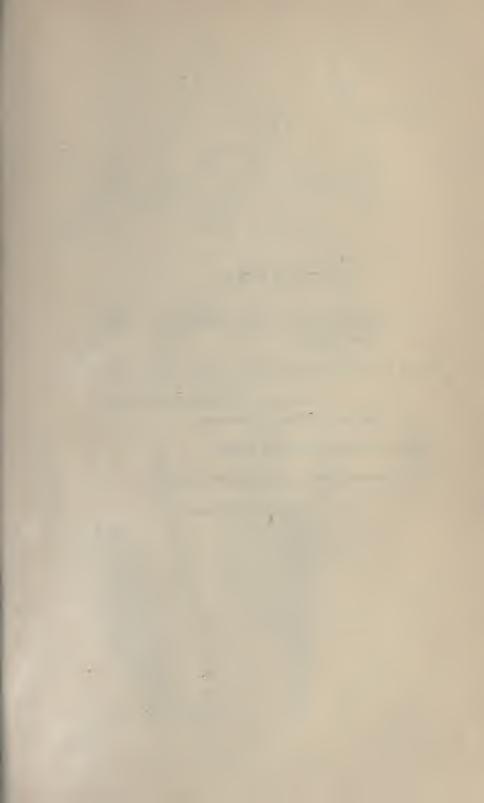
## PLATE LXXVI.

FIU.	
1.	Bowerbankia pustulosa, p. 522: nat. size.
2.	, group of cells, with polypides expanded.
3–5.	————, zoœcia, showing the subspiral arrangement.
6.	Bowerbankia citrina, p. 524; nat. size.
7.	—, group of cells, with polypides expanded.
8.	, ditto, showing its comparatively small



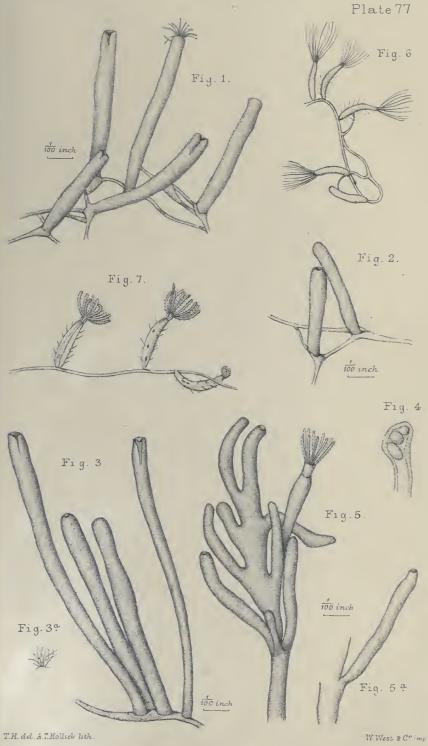
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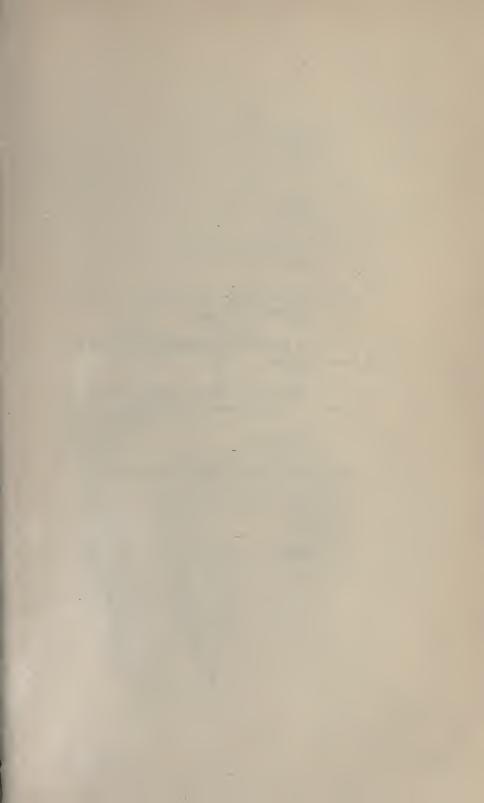
## PLATE LXXVII.

- 1, 2. CYLINDRŒCIUM DILATATUM, p. 536. See Plate LXXIX.
- 3, 3 a. Cylindræcium giganteum, p. 535.
  - 4. ——, showing the ova collected at the top of the zoccium previous to escape.
- 5, 5 a. Anguinella palmata, p. 539.
  - 6. Avenella fusca, p. 527. After Dalyell.
  - 7. ———. After Wyville Thomson.



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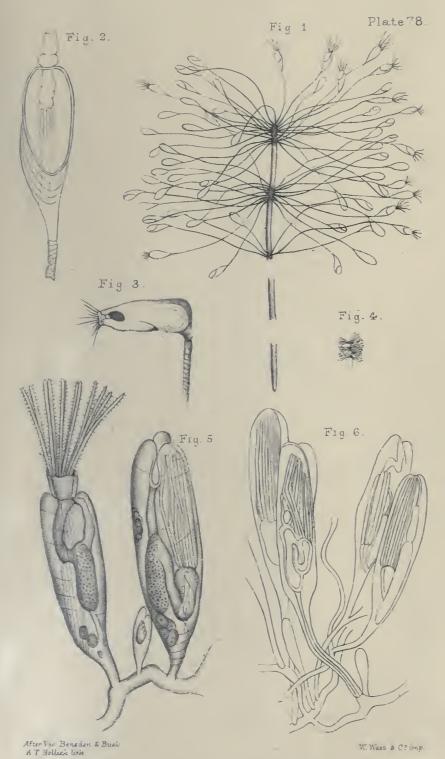




#### PLATE LXXVIII.

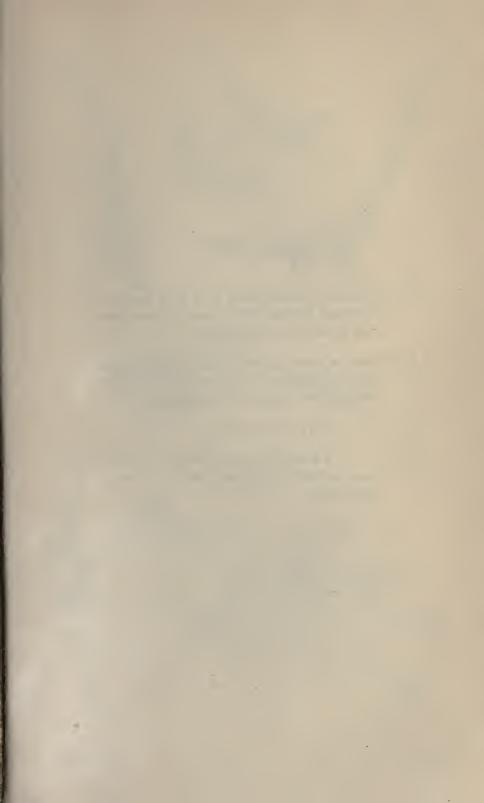
- 1. HIPPURARIA EGERTONI, p. 549; portion of the erect stem, with whorls of cells.
- 2. —, a zoœcium, much enlarged, showing the ventral aperture.
- 3. ——, showing the degree in which the cell can be bent. After a sketch by Sir P. Egerton.
- 4. , nat. size \*.
- 5. Farrella Repens, p. 529. After Van Beneden.
- 6. , form elongata. Ditto.

<sup>\*</sup> Figs. 1, 2, and 4 are after Busk.



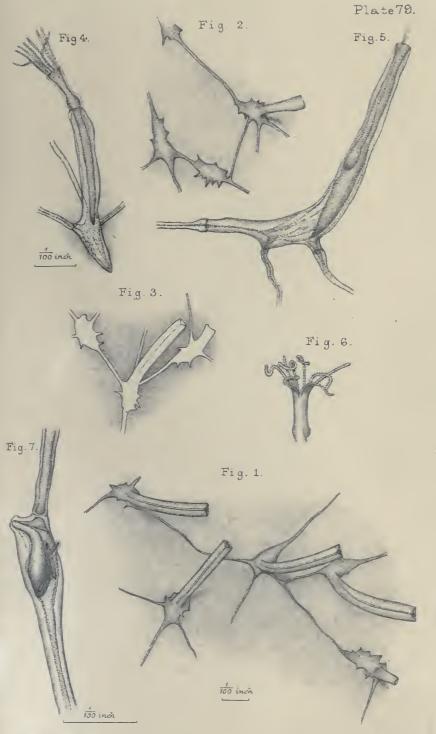
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#### PLATE LXXIX.

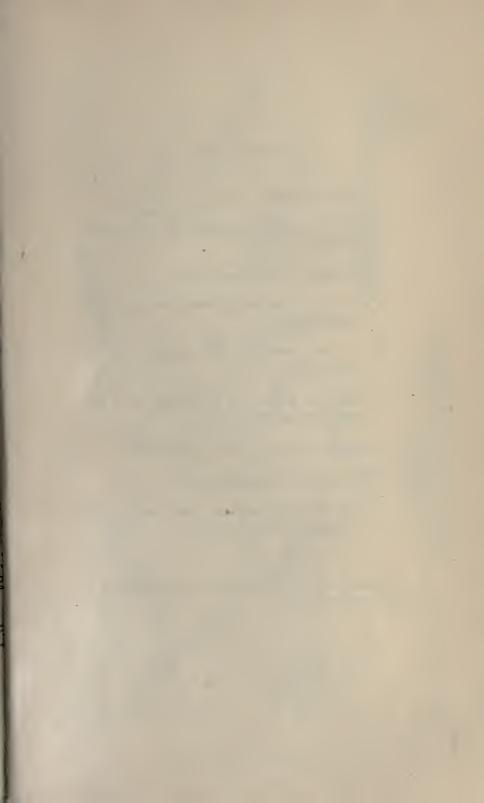
- 1-3. Cylindrecium dilatatum, p. 536; from specimens developed on shell, with a large spinous dilatation at the base of the zoecium.
- 4, 5. VICTORELLA PAVIDA, p. 561; showing the expanded and decumbent base of the cell, and the Campylonemidan arrangement of the tentacles.
  - 6. , the tentacular wreath.
  - 7. ——, a zoœcium in an early stage of development, the polypide forming within the decumbent portion.



T.H. del. A.T. Hollick lith.

W. West & C? imp.





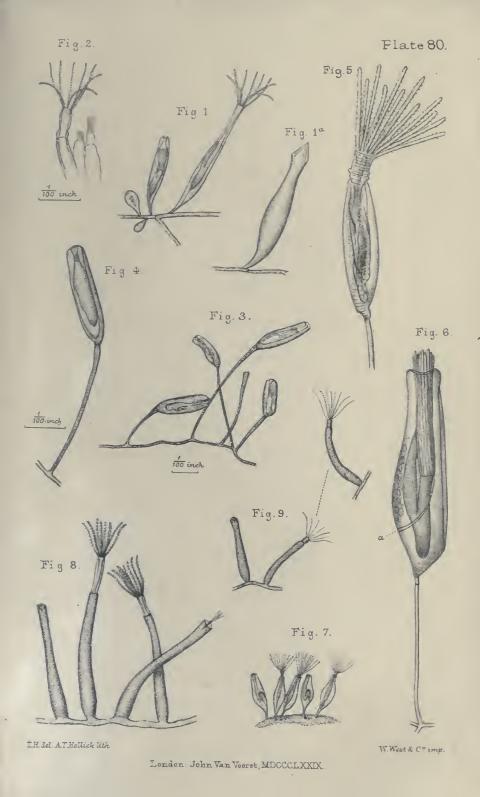
#### PLATE LXXX.

FIG.

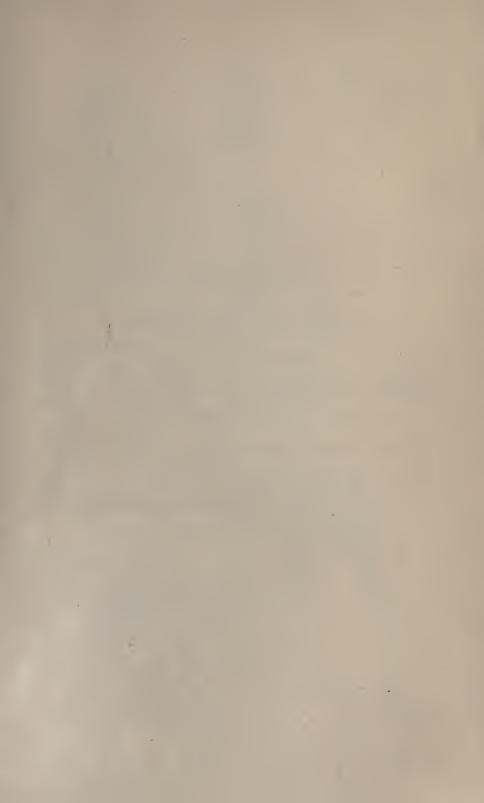
- 1, 1 a. VALKERIA TREMULA, p. 554.
  - 2. ——, polypide expanded, and cells showing the setose operculum.
  - 3. Triticella pedicellata, p. 547.
  - 4. —, zoœcium, showing the ventral side and the aperture.
  - 5. —, zoccium, with polypide expanded.

    After Alder.
  - 6. Triticella Korenii, p. 545. After G. O. Sars. See Plate XLV. figs. 8-10.
  - 7. Triticella flava, p. 543. After Dalyell.
  - 8. Cylindræcium pusillum, p. 537\*.
  - 9. ? Cylindræcium pusillum, dwarf var., p. 538; or possibly a distinct species.

<sup>\*</sup> This figure is defective in not showing the expansion at the base of the zoocia. See woodcut, p. 538.





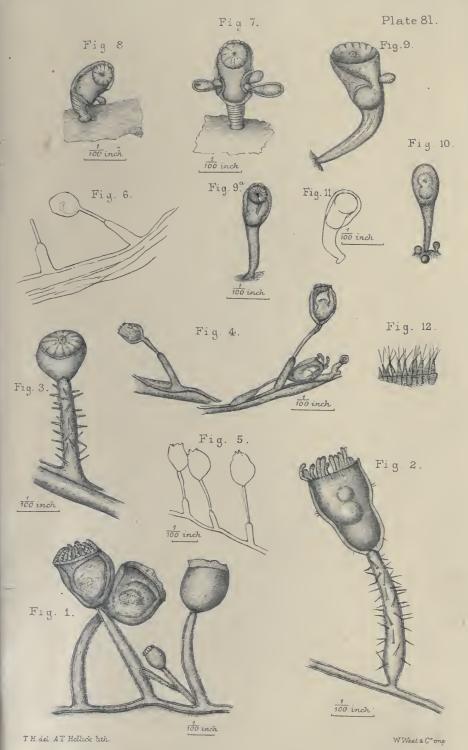


### PLATE LXXXI.

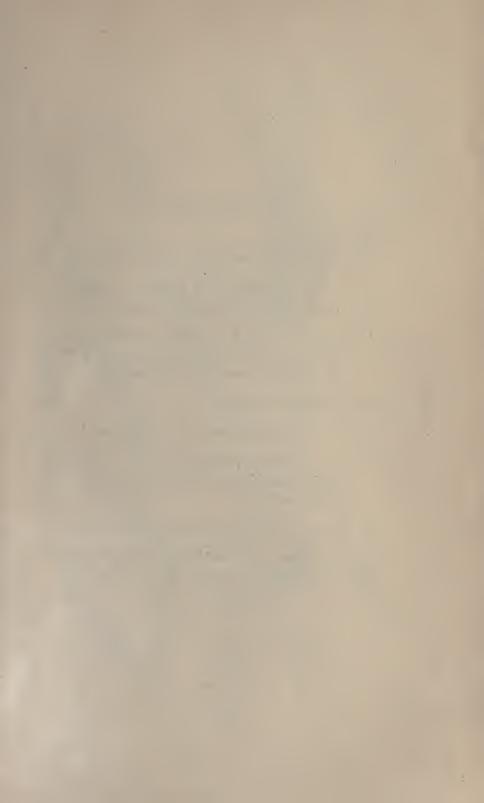
- 1. Pedicellina cernua, var. glabra, p. 565.
- 2. —, elongated form.

FIG.

- 3. ——, showing the tentacles folded in.
- 4-6. Pedicellina gracilis, p. 570.
- 7, 8. Loxosoma singulare, p. 573.
- 9-11. Loxosoma claviforme, p. 575.
  - 12. Fragment of the skin of *Hermione*, with individuals of the last species in situ, nat. size.







#### PLATE LXXXII.

2. — , portion of the zoarium, with the con-

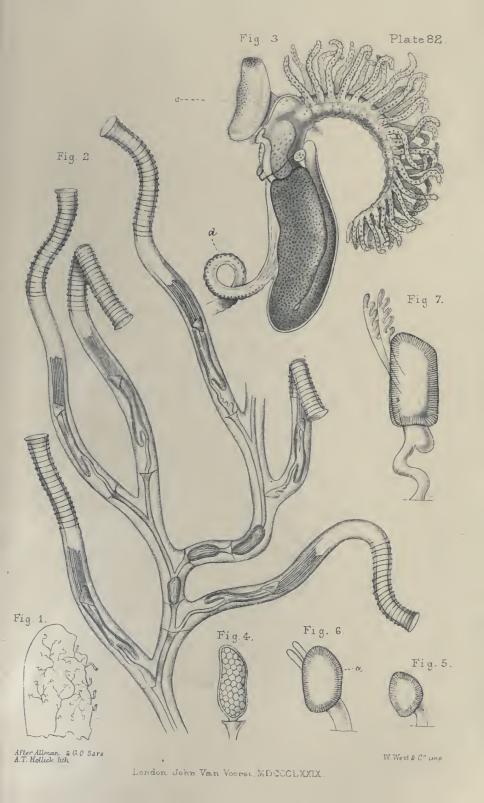
3. The polypide of R. MIRABILIS, Sars, removed from its

1. Rhabdopleura Normani, p. 580; nat. size.

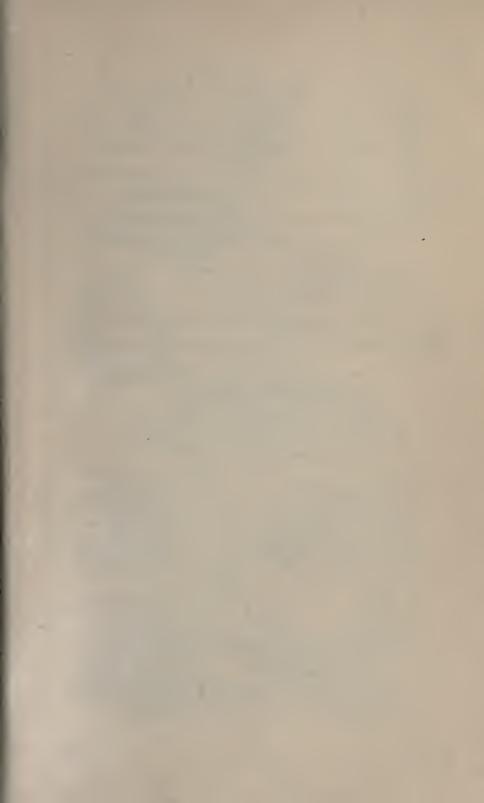
tained polypides, very much enlarged.

FIG.

cell: c, the "buccal shield;" d, the cord by which the polypide is attached to the axial rod.
4. R. Normani, statoblast.
5. —————, polypide bud in a very early stage.
6. — , ditto more advanced: a, one of the two
fleshy plates between which the developing polypide is included.
7. ————, ditto in a still more advanced stage.
[All the above figures are after Allman, with the exception of fig. 3, which is copied from G. O. Sars.]
•







#### PLATE LXXXIII.\*

#### Larval forms.

FIG.

- 1. Loxosoma singulare; larva in the aet of swimming.
- 2. Tubulipora flabellaris (? fimbria of the present work); general appearance of the free larva.
- 3. Algyonidium mytili; free larva, front view.
- 4. MICROPORELLA CILIATA; free larva, viewed in profile.
- 5. Cellepora pumicosa; free larva.
- 6. Bugula flabellata; free larva.
- 7. Eucratea Chelata; free larva, viewed in profile.
- 8. VALKERIA UVA, form cuscuta; free larva, front view.
- 9. Membranipora pilosa; larva (Cyphonautes compressus) immediately after liberation.
- 10. Flustrella hispida; free larva.

#### Lettering of the Figures.

S. Oral surface.

I. Aboral surface. C. Ciliary corona.

ph. Pharynx.

æ. Œsophagus.

R. Rectum. est. Stomach.

o. Mouth of the gastrula.

ms. Oral mesoderm. mi. Aboral mesoderm.

cc. Cavity of the body.

CD. Digestive cavity.

oc. Eye-speck.
fl. Flagellum.

pl. Ciliary plume.

vt. Sucker. V. Adhesive organ.

sb. Furrow separating the aboral

mass and the surface bearing the ciliary corona.

si. Furrow separating the sucker and the lower portion of the aboral surface.

RM. Maximum point of the aboral

RV. Border of the sucker.

r. Great retractors.

va. Tactile organ (in Loxosoma).

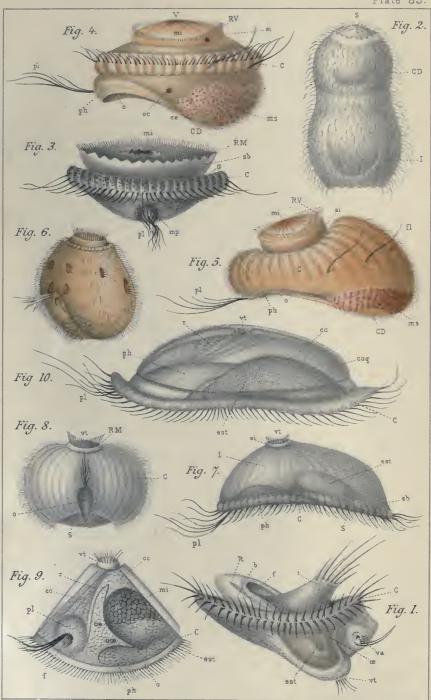
mp. Pigment of pharynx (in Alcyonidium).

ce. Obscure portion of the body-cavity between the two branches of the stomach.

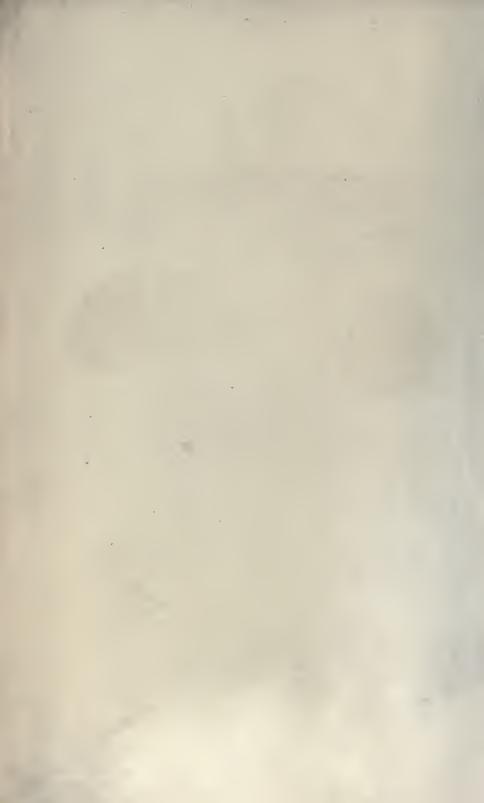
cæ. Lateral diverticulum of the foregoing.

coq. Shell (in Cyphonautes).

<sup>\*</sup> The figures in this Plate are all copied, by the author's kind permission, from Dr. J. Barrois's admirable work on the Embryology of the Polyzoa, with the exception of fig. 6, which is after Nitsche.



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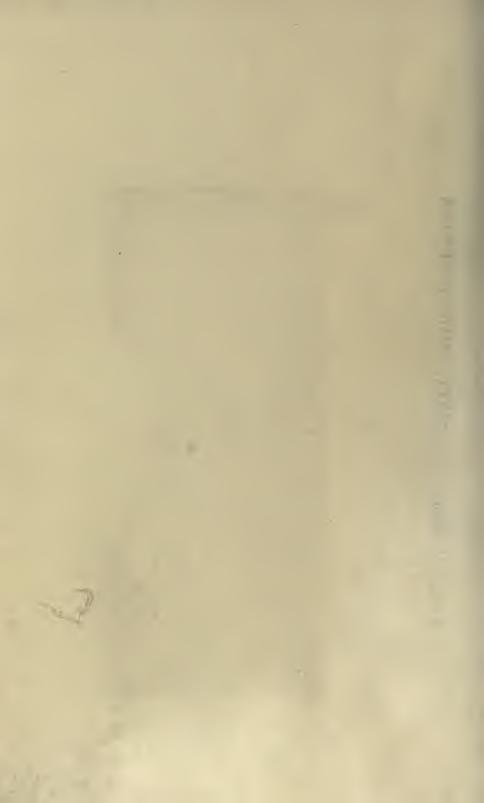
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